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## The achievement of Robbins II

# Degrees of expert knowledge

Perhaps the sharpest paradox of the Robbins period is that what started as an enlightened experiment in liberal pedagogy, an attempt to free undergraduate education in particular from the sclerosis of creeping academic specialization and redefine liberal education in modern post war terms, ended by stimulating the development of a pervasive culture of research and the reinforcement of A. H. Halsey's "donnish dominion", which were so inimical to that cause. If the misdirection of expansion, into social sciences rather than science and especially technology, is the first complaint against Robbins, this is the second. For this it is difficult to blame the committee. Rather it was a result of how the universities interpreted, or misinterpreted the message of Robbins or simply went their own way. The second theme of the post-war development of the universities encouraged by both UGC and Robbins plainly was to encourage more liberal forms of higher education. In practice these were largely interpreted in terms of broader first-degree courses. The Robbins committee had no doubt that this was the right approach.

So it is hardly surprising that the Robbins report recommended that a higher proportion of students should receive a broader education in their first degrees. Indeed the committee emphasized that this was central to the philosophy of its report - "We regard such a change as a necessary condition for any large expansion of universities". This broader undergraduate education would take two forms, more degrees that combined two or more subjects and more pass degrees "at a less arduous level".

Perhaps one of the weaknesses of Robbins was that at this stage the argument for general undergraduate education faltered. The committee did not explain the suitable content and structure of such education in sufficient detail to allow effective policies to be developed. It insisted that it was not arguing for breadth as such, regardless of the suitability of the combinations of subjects, and also that students should not be made guinea pigs on "experimental" texts or a commonly accepted core of methods of thought, a considerable caveat. The committee was equally cautious in its detailed remarks about pass degrees. It expected the number of such courses and of students on them to remain small and that the majority of students would still embark on honours degree courses despite the blight of specialization. The pass degree route was consigned to "the slower and less able student".

Both the commitment of Robbins to the principle of general undergraduate education and the committee's ambivalence about their detailed implementation echoed the contradictory opinions on this question within the universities. First, the commitment. This had three discordant elements. The first was a perhaps reactionary sentiment, a longing for the integrative disciplines that had played such a creative role in the elite pedagogy of the liberal university. The second in contrast was almost futuristic, a prediction that in the future the turnover of theoretical knowledge would be so great that those with an overspecialized higher education would be saddled with obsolete information and skills. So the acquisition of adaptable, and necessarily general, intellectual skills had to have a higher priority than the acquisition of detailed information and specialized skills.

This third view the deepest recognition that the substantial expansion of the universities would in the long run create students who although not necessarily "slower and less able" might lack the sharply focused intellectual commitment of students in the smaller and more

selective system. All three elements came together to make up this sustained commitment to more general undergraduate education. The ambivalence of Robbins about the details is equally interesting. For the enthusiasm of the committee, and of the UGC, for general courses was tempered in three ways. First, both contemplated a substantial expansion of postgraduate courses, although they attached a low priority to extending the length of first degree courses. The need for this was clear to Robbins. The expansion of knowledge had made it impossible for a student to master a subject within the limits of a first degree. Attempts to do so had led to serious overloading which had not only made first degrees too specialized but failed to achieve this objective. The worst of both worlds in fact.

The second qualification was that considerations of manpower planning were never entirely banished even from the Robbins report. The committee paid considerable attention to the split between arts and sciences, and half-recommended, half-predicted that the proportion of students studying science and technology subjects (excluding medicine) in universities should rise from 45 per cent to 56 per cent in 1980/81 and that within this increase there should be a relative shift from science to technology. From the late 1960s the UGC became increasingly absorbed with this kind of macro-manpower planning in general and the arts: science split in particular.

Of course, this concern did not directly contradict the enthusiasm for more general undergraduate education. General science courses could be conceived as well as general non-science courses, but in practice because of the greater fragmentation of scientific knowledge were much more difficult to implement. So it is probably fair to regard the concern with the arts: science split, to the advantage of the latter, as subservient to the enthusiasm for more general degrees. The third qualification of this enthusiasm was really also the third theme of post war university development. It was knowledge itself, or in the words of Robbins "the advancement of learning". The modern university has placed the codification of theoretical knowledge at the centre of its enterprise. Even the Robbins committee, in many ways a body very much attached to the older values of the liberal university, was prepared to concede this although rather grudgingly. The advancement of knowledge was the third of its four objectives for higher education. "The search for truth is an essential function of institutions of higher education and the process of education is itself most vital when it partakes of the nature of discovery".

By accepting that this search for truth, which in the inevitable form of research would be almost wholly determined by the theoretical preoccupations of specialized disciplines of knowledge, was an essential function of the university and that the teaching of students had to be conducted in close association with research, the Robbins committee made it unlikely that its objectives for general degrees would be developed on any scale.

Although uneasy, the members of the committee did not break with this orthodoxy. In a significant sense the student who was most likely to benefit from a broad undergraduate education was notified in the high-fliers who agreed to "a world of intellectual responsibility and intellectual discovery". It made the binary policy inevitable.

For the advancement of learning no longer took place within the liberal pursuit of knowledge, but in the specialized disciplinary disciplines.

was through this increasingly complex division of intellectual labour that the modern university had become an efficient knowledge machine. Both the members of the UGC and of the Robbins committee were aware of two persuasive facts. The first was that this division of labour had been much more forcefully followed through into a parallel differentiation or stratification of higher education in rival nations than in Britain.

In the USSR, very much in the mind of the Robbins committee because of the recent successes of Soviet science, research and the training of the ultra-skilled had been segregated into specialist institutions. In the United States the much greater diversity of the system had allowed the so-called research universities to concentrate on science and scholarship and relatively to degrade undergraduate teaching. In contrast to both Britain's more homogeneous universities seemed a more primitive knowledge machine.

The second was that the greatly increased public expenditure on universities was regarded by successive governments as an investment in science, technology, and other useful knowledge. They were the advance factories of ideas that would invent the future, or at any rate prevent our falling too far behind the Americans and Russians (or, a decade later, the French and Germans).

The second objective of university development, the broadening of undergraduate education, has not been met. It certainly has not been met by the universities. What progress has been made, and much of that has been precarious and conditional, has been made in the polytechnics and other non-university colleges. In universities the overwhelming majority of undergraduates continues to be enrolled on degree courses.

At first sight this conservatism is puzzling. During a period when Britain developed an at least semi-mass system of university education the hegemony of the honours degrees has been virtually without serious challenge. Indeed it can be argued that it has been reinforced by the development of degree courses in the polytechnics and colleges under auspices of the Council for National Academic Awards. Part of the explanation is simply banal. There was in the 1950s and 1960s a large unsatisfied demand for higher education places, as the subsequent successful expansion so clearly established. As the universities were largely in the business of offering specialized degree courses it was almost inevitable that much of this expansion would flow into that channel.

However, a major reason must be the values of the academic profession and the traditions of the universities which are reflected in the practice of honours degrees. One does not need to be a conservative to accept that honours degrees occupy a particularly sensitive and influential place in British universities. This cannot be explained simply in terms of institutional inertia or fear of change.

They also embody important and for many eloquent values about the intentions of undergraduate teaching, which are related to both the commitment to excellence, a duty which the Robbins committee took particularly seriously precisely because it was recommending a radical expansion of the system, and the pedagogical traditions of the liberal university and its strong commitment to high public culture. Although there is no room here to discuss these underlying values in any detail, four general points may perhaps be made.

The first is that because British universities have continued to enrol only of the brightest students, who if they are immediate school leavers, will have passed through an

intensive and rigorous education in the upper secondary school, university teachers have high expectations of their students. Second, there is still a strong assumption that conceptual skills are best acquired through a sustained study of a specialized subject.

Third, the hierarchy of the academic profession continues to be largely determined by prowess in research and there is still no serious division of labour between teachers and researchers. One result is that teachers, however devoted they may be to good undergraduate teaching, always have to pay considerable attention to the developing theoretical preoccupations of their disciplines.

This bias may be intensified by the fact that there are powerful research institutions that can command attention of individual universities directly through grants and indirectly through the influence of discipline-based networks, while the process of teaching undergraduates has no such powerful external focus. The existence of the CNAA modifies this pattern, the non-university half of higher education but the universities remain free of all external validation or accreditation.

Fourth, British universities are exceptionally autonomous. Neither the state nor the market has much influence over what goes on inside individual universities. So the hegemony of the honours degrees may simply be a reflection of the "donnish dominion".

The third broad theme of post-war university development, the growth of a more persistent research culture, has to be measured against two distinct sets of criteria, the statistical and the normative. The results of the first tend to support the view that research has become much more important within universities. In 1959/60 universities had a research income of £1,951,000 (£1,096,000 from the Government), which represented 5.5 per cent of their total income. In 1978/79 had increased to 15.3 per cent, £226 out of £1,478. These figures, of course, only cover earmarked research expenditure.

It has been suggested, most recently in the Morrison report, that since the middle-1970s this trend has been reversed and that expenditure on research has been squeezed as universities have had to readjust to reduced income. It is certainly true that the number of university teachers has increased more slowly than the number of students so leading to less generous staff: student ratios and so, potentially at any rate, to greater concentration of teaching.

Yet this has been offset by two factors. The first has been the growth in the number of academic staff in universities solely concerned with research, the majority on short-term contracts. The second is that, although the universities' share of the science budget may have declined from its mid-1970s peak, the science budget itself has continued to grow much faster than general university income. So the true picture may be not so gloomy as the defensive in universities but that it is being conducted under different conditions that make much greater use of contract labour and that mainstream university teachers are probably less significant in the much broader issues raised by the development of a stronger research culture, the over-spilling of the traditional limits of the academic system and led to the formation of a new intellectual class? This issue will be discussed next week.

Peter Scott

© Laurie Taylor is on holiday. He will be back on September 2.

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## Funding shake-up approved

by John O'Leary

New methods under consideration for distributing money from the advanced further education pool would switch funds from the smaller colleges and provide a boost for some hard-pressed polytechnics.

The National Advisory Body has approved proposals from one of its working groups to make next year's allocation more sophisticated, building in extra weightings to compensate for high-cost courses. The group, which meets again next week, is examining the feasibility of giving credit for particular groups of subjects and for degree and postgraduate courses.

Preliminary work by the Department of Education and Science has shown that the new system could result in massive changes for some specialist colleges and would make a significant difference to certain polytechnics.

Six possible new methods of allocation, taking account of student numbers, levels of work and subject variations, and combinations of all three factors were examined by the DES. The adjustments all produced only marginal changes for the polytechnics as a whole, but some would experience considerable budget fluctuations.

Oxford Polytechnic, the least generously funded of the group at present, would gain between 4.5 and 5.5 per cent from the introduction of new subject weightings, whether or not combined with an extra allowance for higher level courses. But Middlesex Polytechnic would lose up to 3 per cent.

The biggest weighting would be given to computer courses, with music, drama, the visual arts and science next. Engineering, medicine, pharmacy and ancillary health courses would also benefit, with humanities at the bottom of the scale and business management, accountancy, law, languages and literature little better off.

The most spectacular gains would be made by small, specialist institutions such as the College of Nautical Studies, which would receive a budget increase of 26 per cent from subject weightings alone and might improve its position by as much as 36 per cent if other allowances were made as well. But those with little degree work and specializing in the "wrench" subjects would lose almost as much.

## Teams seek better relations

by Jon Turney

Science Correspondent  
University teams hoping to attract funding from the Government's new £200m programme of advanced computer research will need an industrial "uncle" to support their applications. A progress report from the Alvey directorate, named after the chairman of the working party which recommended the programme, says that contract proposals should normally involve at least two industrial partners.

Applicants for money will also have to spell out which parts of their work are industrial, eligible for 50 per cent funding, and which parts academic, and fully paid for by the directorate. The report says that if research is too speculative or long term that there is no prospect of direct industrial participation in an academic programme, an "uncle" from industry will be required

## UGC discusses going public

by Peter Scott

The University Grants Committee may in future publish "Green Papers" on policy issues like student demand and manpower planning. Retiring chairman Sir Edward Parke is particularly keen that the UGC should publish discussion documents to inform the university community about current issues. In some cases these might list options for future policy and so provide the first ever opportunity for the universities to participate publicly in UGC planning.

The committee already has policy papers written for private consumption which could be rewritten as discussion documents. The obstacle to this new initiative is the UGC's chronic shortage of staff. It is estimated that up to three new officials would be needed, but the committee has lost a third of its staff in the last five years.

The internal papers would have to be elaborated because they are written for a small, private, and expert audience. Some of the language would have to be changed and the issues set in a broader context before they could be published as discussion documents.

Given the necessary staff, the UGC would expect to publish three or four "Green Papers" a year. This idea will be among plans for the reform of the working of the UGC that will be discussed by the committee at its annual residential weekend next month. Sir Edward's last major occasion as chairman before moving to Leeds as vice-chancellor on October 1.

Also on the agenda will be the increasingly complex issue of student numbers. In recent months the UGC has come under mounting pressure, from officials if not ministers at the Department of Education and Science, to modify its tough line on limiting student numbers.

This pressure will be increased next month when the National Advisory Body publishes its plans for 1983/84 which will lead to new restrictions on intakes to polytechnics and colleges.

At its September retreat the UGC will consider the implications of the NAB plan for opportunity rates in higher education generally, and discuss particular requests from individual universities to vary their targets.

The most likely outcome is that the UGC will reaffirm its former stand but allow few universities to recruit a limited number of extra students, mainly in science and engineering.

The universities have lost a potential windfall of more than £10m as a result of the Chancellor of the Exchequer's emergency cuts package in July. It became clear this week. If these sudden cuts had not been imposed, their grants could have been updated because the UGC made an unnecessarily pessimistic allowance for rate increases in the original calculations.

So although their grants will not be actually reduced, there has been a significant loss of potential income.

The rest of the £23.5m saving demanded of the universities this year has been achieved by raising their restructuring fund. £10m has been cut out of the £50m allocation but the UGC has already told the DES that the full amount would not have been claimed by the universities in time because of the pace at which staff were being shed. Any unspent sum would have been clawed back by the Treasury in any case so the universities have suffered no effective loss.

## Train teachers to combat racism, says CRE

by Patricia Santinelli

The Commission for Racial Equality has asked teacher training institutions to investigate the racial attitudes of their staff and devise anti-racist courses.

A letter from the commission's new anti-racist working group says it is concerned about the failure of teacher training institutions to include multicultural and anti-racist material in courses.

"In Britain today we live in a profoundly racist society and therefore cannot take a neutral stance towards this in our teacher training institutions. It is time for those concerned about racism to consider strategies both for practitioners to operate and for establishing this as a priority and mandatory part of teacher education," the letter says.

The group was asked for support from not only teacher education institutions but also groups and individuals working against racism, in particular black people themselves. It says it wants to get away from the concept of introducing multicultural education in the curriculum and to take a positive anti-racist stance where all institutions will examine every aspect of their training programmes.

"This will obviously include the curriculum, but more importantly will involve the study of the racial attitudes of all staff, methods of recruiting both staff and students, devising anti-racist courses including the history and facts of racism and how they should be taught in schools," it says.

The new group intends to operate regionally with active members meeting regularly to work out how anti-racist attitudes can be translated into action. It gives a list of those who have already either attended or supported the group.

Initial reactions to the letter show that it is not being received in the spirit intended. Professor Bill Middlebrook, head of Trent Polytechnic's school of education and the chairman designate of the Polytechnic Council for the Education of Teachers said it smacked of a witch hunt.

"The whole ethos of the letter is wrong," he said. "It represents an extreme statement of the situation and it is conceptually naive to say we are a racist society."

Professor Maurice Craft, dean of the school of education at Nottingham University and the chairman of the CRE official advisory group on teacher education described the new group as wasteful and said it duplicated the role of the CRE's official advisory group.

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## Plans drawn up for training scheme shortfall

Manpower Services Commission officials and ministers are to discuss contingency plans for meeting a possible shortfall in the number of eligible people going on to the Youth Training Scheme this September.

Last month Mr David Young, chairman of the MSC said that his major worry was a surplus of places because it had become clear that more young people were getting jobs or were planning to stay in education than had been anticipated. This was later disputed by the Institute of Careers Officers.

MSC plans involve relaxing the eligibility rules and drawing up a priority order of previously excluded young people. Under current regulations only 16-year-olds have a guaranteed place.

Mr Geoffrey Holland, director of the MSC who does not believe there will be a shortfall, said there were three

groups who could fill the places:-

- unemployed 17-year-olds;
- disabled and handicapped youngsters over 16 and a few over 18;
- people who entered the Youth Opportunities Programme but because of the changeover to YTS received only short training and are now unemployed. Careers officers and the education service have argued that they have been unfairly treated.

Mr Holland said it was very important for the credibility of the scheme that there should be enough youngsters to fill the places.

The MSC is also preparing proposals for next year's scheme which it intends to put to commissioners and ministers in September. It has to reconcile three key aspects:- no additional Government funds are available for YTS; the expansion of the scheme to all 17-year-olds; and the quality of the scheme. It is

thought that commissioners would insist on quality rather than expansion if given the choice.

A major expansion of Mode A schemes - those run by employers - balanced by a more moderate expansion of Mode B schemes - those run by colleges and voluntary agencies - is being considered.

But Mr Holland stressed that an expansion of Mode B would be necessary, not only because in some parts of the country it was not possible to run Mode A schemes, but because Mode B schemes were of very good design and quality and their sponsors were particularly willing to take on the most disadvantaged young people.

To ensure the quality of YTS, the commission is planning shortly to advertise the post of head of quality assurance.

continued on page 3



## Sussex is body in question

by Jon Turney  
Science Correspondent

Dr Jonathan Miller is set to pursue his interrupted academic career at Sussex University this autumn. Last year he decided to return to full-time research after years as a director and writer and has been offered a three-year Leverhulme research fellowship in the university's school of cognitive sciences.

The fellowship is worth nearly £90,000 and will follow a summer spell as visiting professor of medicine at McMaster University in Canada. Sussex University said this week that he has not formally accepted the award, but an announcement was expected in the next two or three weeks.

Dr Miller's most recent television appearances were in a series of interviews with leading psychologists, and he has had an abiding interest in the workings of the brain since qualifying as a doctor in the late 1950s. The school of cognitive sciences at Sussex is known for an interdisciplinary approach to psychology, philosophy and computer science, especially through the work of Professors Margaret Boden and Christopher Longue-Higgins.

Dr Miller has held two previous academic appointments but, characteristically, neither was in an area related to the neurophysiological studies he now wants to develop. He held a research fellowship in the history of medicine at University College London from 1970-73 and he has also been a visiting professor of drama at Westfield College, London.

Despite his reputation as a director in the theatre and opera, he maintains that research is "much more worthwhile". He has often said that no hospital would allow him to return so the Sussex appointment, if confirmed, would be a happy compromise.

## Leftover research needs cash

by Olga Wojtas  
Scottish Correspondent

Aberdeen University is to seek a grant from the Medical Research Council to allow research to continue after an MRC-funded unit is transferred from Aberdeen to Glasgow.

It is thought that the department of obstetrics and gynaecology will ask for around £100,000 to continue work pioneered by the medical sociology unit set up 20 years ago under the directorship of Professor Raymond Illsley.

Professor Illsley retires in October and the unit, the only one of its type funded by the MRC, will move to Glasgow some time in the coming year by Dr Sally Macintyre, at present a member of the Aberdeen unit, as its

new director.

Professor Illsley said: "We have always worked extremely closely with the department of obstetrics, and they will lose a major resource. We have done an enormous amount of work on the study of childbirth, and problems related to infant deaths, abortion, stillbirths and contraception."

The unit had also collaborated with the department of community medicine, and had looked at the way in which social factors affected the health and development of children and adults, as well as carrying out various studies on the elderly.

Professor R. D. Weir said his department of community medicine would now presumably seek links with Aberdeen's department of psychology, sociology and social work. The loss of

the unit was "unfortunate", he said, but added: "It one's honest, one can see why there's a need for it in Glasgow as opposed to Aberdeen which only has a population base of 400,000."

Glasgow has a much larger and more diverse population, said Dr Macintyre, with more social and medical extremes. "Aberdeen is fairly homogeneous, fairly healthy, with fairly low unemployment. In Glasgow we hope to look at the effect of the social and physical environment on people's health in two or possibly more communities."

The Aberdeen unit currently has a staff of around 25, some of whom will remain in the university. Dr Macintyre said the Glasgow unit was likely to begin with around ten staff from Aberdeen, with several new recruits.



"So this is Paris", by Haydn Cottam of St Martin's School of Art, went on show yesterday at the Mall Galleries, London, as one of the finalists in the Hunting Group's new student art competition. The winner, Katy Shepherd, of Sheffield Polytechnic, won £500 and a woman show at the galleries to coincide with next year's competition. The finalists were chosen from 67 entries by final year degree students at 23 universities, colleges and polytechnics. All nine will participate in the Hunting Group's open competition, which carries two £5,000 prizes.

## Cambridge updates on robots

The University of Cambridge is to enter the lucrative field of career updating by offering industrialists a course on robot applications.

The intensive two-day course this autumn will signal the first fully-fledged collaboration between a university department and the extra-mural department leading to a refresher course of this sort.

The extra-mural department at Cambridge has approached other departments to try to encourage continuing education programmes which it sees as a chance to tap reserves of expertise. In the past, individuals or groups of individuals within departments have provided consultancy or other services to industry from their own initiative.

The university's extra-mural depart-

ment provides in-service training courses for magistrates and Home Office staff and for the armed services on international relations and computing. But these courses have not been in cooperation with any university departments although they have drawn upon university staff.

The unique aspect of the collaboration with the department of engineering on the robot application course is that it is a structured course in which the department is officially involved. Both the extra-mural department and the engineering faculty had been working their way separately towards an in-service course of this sort for the production engineering trips at Cambridge a few years ago has brought in new staff.

## Brighton staff strike over job cuts

Non-teaching staff at Brighton Polytechnic held a one-day strike this week in protest against redundancies and job cuts at the end of negotiations with the local authority and polytechnic management.

Three members of the National and Local Government Officers' Association at the polytechnic will be declared compulsory redundant by Brighton City Council at the end of this

month. This follows a reduction of around 50 non-teaching jobs. Officers have been redeployed by the local authority or taken early retirement. The cuts parallel a reduction in teaching staff negotiated with no redundancies after industrial action by lecturers earlier this year.

The strike was agreed by Nalco members at the polytechnic after a secret ballot.

## Report urges postgrads to draw up supervision 'contracts'

The establishment of a working relationship between students undertaking higher degrees and their supervisors is a critical element in achieving success, according to a British Educational Research Association report published this week.

The report, *Supervision of Students for Research Degrees*, with a special reference to educational studies identifies the problems of admission, supervision and examinations of such students based on papers and surveys in this field.

According to the report, which is to be discussed at BERA's annual conference at the end of this month, the working relationship could lead to the contract between tutor and student. This would not be a legally

binding contract but one negotiated and put on record so that each knows how to satisfy the expectations of the other.

This is seen as particularly important because surveys conducted in university departments of education show that students' "ideals" for a supervisor were not matched by the reality, that more than half had problems with research methods and a quarter suffered feelings of isolation for which they were inadequately prepared.

The report argues that the effect of a contract should be an agreed allocation of responsibilities, functions and resources, and a clear definition of the nature of the relationship, including the same. It also calls for a resolution and constructive criticism.

"Similarly student roles which are bound to change during the course of research may be defined as he/she moves from a relatively ill-informed and undisciplined thinker to the author of a limited but definitive inquiry," the report says.

On admission, the report says that it is critical in the case of students being admitted for higher degrees in education to ensure that such applicants have an adequate knowledge of the subject and the particular methods to investigate the particular discipline.

"In cases where students have not expected to have such knowledge and techniques, then the resulting institution should make sure that the staff who are willing to take on such a task are adequately trained and equipped."

admitting department should also ensure that it has adequate resources to provide tutorial support," the report says.

On examinations, the report says that there might be value in conducting independent "mock" examinations of a published thesis on a topic similar to that being prepared by the student. It also suggests that consideration should be given to taking into account other evidence than the thesis.

*Supervision of Students for Research Degrees*, with a special reference to educational studies, published by BERA, edited by Professor Jim Eggleston, School of Education, Nottingham University and Sara Deighton, Department of Sociology, University College, Cardiff.

## Social work sets its priorities

by Paul Flather

The social work training council worked out priorities for the next years as it will not be able to fund work at current levels.

It has decided to focus on pre-qualifying training courses and on development, particularly in the area of personal social services, which tended to attract fewer candidates for the council.

The Central Council for Education and Training in Social Work managed to avoid immediate cuts in some of its statutory work as feared at the beginning of the year through some revisions of its annual budget, cutting £2.26m.

Recruitment of students to its work courses, validating courses, making training awards are now fully maintained with the administrative, committee, and liaison support required. But all other work is kept under review.

The council will also now try to redress what it sees as a gross imbalance between the interest in qualifying and post-qualifying training courses, and it proposes to shift its resources from one area to the other.

Mr Hugh Barr, an assistant director at the council, said that although there were now a substantial number of approved post-qualifying courses, only three months to one year the take-up was "frankly less than we would wish". The council would improve the whole approach to funding, training, he said, at a time when social workers with more specialist and to-date skills were in greater demand.

Academics however are bound to be concerned about any shift of resources away from qualifying courses, particularly if they are drawn from the more general Certificate of Qualification in Social Work or the more vocational Certificate in Social Services courses. The council is also to emphasize current trends towards community care, and continue its efforts to encourage more social workers in day care and residential work to take training courses.

The council will continue efforts to encourage more social workers to take training courses and emphasize the move towards "community care".

The council is also hoping to reduce freeze on filling posts. At present there are still almost 50 vacancies in the council establishment of 173 posts with 12 vacancies among its 60 advisory and educational staff, and 35 vacancies among its 113 administrative staff.

Its priorities include examining developments in educational technology and strengthening links with bodies such as the Open University, which runs courses in health and social welfare, the National Council for Voluntary Child Care Organisation, which is studying adolescent care, and the General Nursing Council, currently looking at care of the mentally handicapped.

## APT attacks Cockerill plan

Proposals for setting up regional consortia of local authorities to allow youth exchange grants are misguiding, says the Association of Polytechnic Teachers.

The association was responding to a report prepared by Mr Geoffrey Cockerill on behalf of the Department of Education and Science and the Foreign and Commonwealth Office. It recommended that such consortia would be able to disburse grants provided by a Youth Exchange Unit working alongside the Central Bureau for Educational Visits.

The APT argues that if the regional consortia draw up their own rules for awards they will be complicating a system which it is proposed to simplify. If they do not have their own rules they will be duplicating the efforts of the YEU.

The process would be expensive and undependable, and would enable local authorities to defer certain organizations from applying for grants while encouraging others.

## Concern as OU fund runs dry

by Felicity Jones

The Open University's hardship fund to help students out with their fees has already run dry halfway through the academic year. About 1000 new students will be refused help as a result.

The OU's financial assistance fund was reduced this year to £420,000 and the means test made on the income to the student's household was tightened up in order to meet the shortfall and an anticipated increase in demand.

But the fund is empty in spite of these measures and an extra sum being made available during the year. It means that existing students will be helped out with their initial fees but half the likely 2000 applications from new students just starting their OU courses next year will be turned down.

The university is concerned that this will deter some students from taking up their places. It is the first time that assistance will have to be refused and one of the university's main principles of "open access" put in jeopardy.

The university says that the situation has resulted from the cut in the recurrent grant from the government which meant that savings had to be made from the assistance fund.

The two-year-old £500,000 fund for the unemployed which is explicitly earmarked by the Department of Education and Science is also expected to be overspent this year and students are unlikely to be able to follow their degrees as a result. About 10 per cent of next year's applicants will be unemployed, putting an additional strain on the fund which helped over 4,000 students, on a means test, last year.

The student association has also had a sharp increase in applications to its hardship fund. Pleas for help are up by a third already only halfway through the year.

The OUSA fund is considered to be very much a "last resort" but appeals for help with renting or buying televisions, without which courses cannot be followed, books, travel costs and baby-sitting costs have been made.

The chairman of the fund, Ms Pam McNay said she thought the increase in demand was directly related to the tougher means tests for the university's funds. "We want to see more money provided from the government and a guarantee that the unemployed fund will continue."

"Fifteen pounds may not seem a lot of money to give so that a student can attend tutorials but for many hard-up students it may mean not attending or spending less on the children," she said.



Bangor chooses new principal

The University College of North Wales, Bangor, has chosen Professor Eric Sutherland, pro vice-chancellor of Durham University, as its next principal. He will succeed Sir Charles Evans in October 1984, becoming only the fourth person to hold the post in the college's 100-year history.

Professor Sutherland, who is head of Durham's department of anthropology, is honorary secretary of the Royal Anthropological Institute and secretary general to the International Union for the Study of New Welsh speakers. He is a native of Astoria, Dyfed, and took his first degree at the University College of Wales, Aberystwyth.

## Research funding scrutinized

by Paul Flather  
and Jon Turney

Academics and researchers have just one month to submit their views to an independent one-man inquiry into how Government should pay for strategic research. The one man is Sir Ronald Mason, former chief scientific adviser at the Ministry of Defence.

Sir Ronald's main focus will be the operation of the customer-contractor arrangements between Government departments and research councils, introduced after the Rothschild report in 1971. He has been asked to report to Sir David Phillips, chairman of the Advisory Board for the Research Councils, by October, so his findings will influence the ABRC's advice to Government in 1984/85.

A review white paper in 1979 came out in favour of continuing the customer-contractor arrangements, under which funds formerly part of the Department of Education and Science's science vote for the research councils were transferred to other departments for contract research. But since then, concern has built up about departmental treatment of "strategic" research, which falls between Rothschild's original categories of "fundamental" and "applied" research.

Sir Ronald said this week his study will focus on the Agricultural and Natural Environment Research Councils, who receive 49 per cent and 35 per cent of their respective incomes from research commissions. However, he has asked for a wider remit so he is free

to study a series of broader secondary questions.

Key questions he hopes to answer include: How has the Rothschild principle worked out in practice? How is research being commissioned nationally and internationally, and should the 10 per cent surcharge on commissions for "general research" proposed by Rothschild still apply? The question is whether nationally we have maintained the best possible system for commissioning strategic research," he said.

The three research councils originally subject to customer-contractor arrangements have all been unhappy with aspects of the system. The Medical Research Council succeeded in winning back control over the funds passed to the Department of Health in 1981, and both ARC and NERC have had awkward moments in their relations with customer departments. One ABRC member said last week, "The problem is that NERC has unreliable customers, and ARC has a reliable customer in the Ministry of Agriculture, but they want to tell ARC how to do the research."

NERC has four different customer departments, and the council's chairman, Sir Hermann Bondi has repeatedly voiced his fears about loss of support for strategic research. "The grey zone of research that is only partly justified on purely scientific arguments, are not immediately of use to the customer, but lay the foundations for being able to answer questions which may be put in the future." The

recent Morris report to ABRC also referred to the problem of strategic research "without an application in view so clear cut that there is an identifiable customer who can be expected to pay".

Other concerns include the effect on individual institutes which earn a very high percentage of their money from outside contracts. Another key area will be the operation of the chief scientist posts in Government departments, which Sir Ronald called the "Catch 22" of the system. The personality involved, the status of the office and the interest of a minister can all influence the research commissioned. Dr Robin Nicholson, the chief scientist in the Cabinet Office, is also concerned about whether departments are doing enough to support research.

The Science and Engineering and Social Science research councils will not escape scrutiny in the new study, but their income from commissioned research is very small compared with ARC and NERC. The SSRC has only ever had one departmental commission, and the SERC's outside receipts were less than 1 per cent of its total budget last year.

Sir Ronald's terms of reference also call for examination of the effects of departmental commissions on research in universities and polytechnics, so he will be able to range over the entire research system, albeit with a very tight timetable. He said he would be working flat out on the study throughout September.

## Plans for YTS shortfall

continued from front page

But a meeting of the education committee chairmen of half of Scotland's regional authorities, further education college principals and members of the educational directorate serving on area manpower boards heard this week that there is to be only one quality inspector monitoring YTS schemes in Scotland.

There was to be an informal private meeting yesterday between Strathclyde regional councillors and officials and Mr Holland, suggesting that careers officers and EMAs should be used to improve the quality control of the scheme.

The earlier meeting, which will be reported today to the education committee of the Convention of Scottish Local Authorities heard that proposals coming from employers to area manpower boards were "not very specific".

Dr Malcolm Green, the MSC's Scottish representative and former chairman of the Scottish Manpower Service Committee said employers could say they would arrange on-the-job training at a college, but there was no requirement on them to do this, and the system could be open to abuse.



There isn't even a lift to break down for the 14 men engaged on a Manpower Services Commission community scheme project constructing a tourist path to the top of Ben Nevis. To start work they climb 1800 feet to the original path built in 1883. Their one-year project links up with one sponsored by Edinburgh University, converting the records of a meteorological observatory built there by the Victorians on to a computer.

## Greeks agree to recognize CNA degrees

Discussions and behind the scenes pressure lasting eight years have finally resulted in an agreement by the Greek government to recognize polytechnic and college degrees awarded by the Council for National Academic Awards.

Greece was the only country in Europe which refused to recognize CNA degrees according to the British Council, who with the Department of Education and Science and the CNA itself has been negotiating with DIKATSA - the Hellenic Republic University Centre for the Recognition of Foreign Educational Qualifications - Affected by the refusal were the thousands of Greek nationals who

come to British polytechnics and colleges every year, and who returned to Greece only to find the government and employers would not recognize their qualifications.

Since the start of negotiations, the Greeks have argued that polytechnics were inferior institutions to universities, and that CNA degrees were not up to either British or Greek university standards.

They were persuaded otherwise - though still with reservations - by meetings organized by the British Council, by pressure from the British Government - especially since Greece joined the European Community - and by a visit organized by the CNA to

British polytechnics for DIKATSA officials earlier this year.

A statement sent to the CNA says that Greece is now prepared to recognize CNA degrees which are the equivalent of university degrees - BA, BSc, MSc, MPhil and PhD - but only if the whole qualification was taken in the British institution and with the exception of architecture, where British training arrangements differ.

Clarification of the statement - it does not include MA degrees for example - is still being sought by CNA. Nor is it clear if the decision is retrospective. But there is widespread relief that the lengthy discussions are approaching an end.

## Union angered by police centre choice

College lecturers are annoyed that a new centre to train police in community and race relations is to be based at a university rather than a polytechnic or college where it would be more accountable to the public.

The Home Office announced this week that it is to give £44m a year to fund the centre at Brunel University to provide training courses for the police and to study relations between the police and the public.

The centre, expected to start work by the end of the year, has been set up following a recommendation by a working party of the Police Training

Council. In a report published in March the working party, itself set up after Lord Scarman's inquiry into the 1981 Brixton Riots, found serious deficiencies in police training in the area of community and race relations.

The National Association of Teachers in Further and Higher Education welcomed the creation of a new centre, but expressed regret that it had not been based in a polytechnic or college where high levels of cooperation with local police authorities had already been well established.

Mr Frank Griffiths, chairman of Natfhe's own working group on police

training, said that public accountability was now an essential feature of improving community and race relations awareness in the police. Public responsiveness is a strong feature of public sector institutions, he said.

The centre's remit includes the tasks of developing training materials and methods in the field of police and community relations; running training courses for the police and in the future for other public services concerned with community relations; and doing research on police community links, especially ethnic minority links. The staff will include two police officers.

## Britain told to lower the barriers

by Ngaio Crequer

Britain must loosen up its institutions and lower the barriers to innovations of all kinds if it is to achieve growth and provide jobs, Sir Adrian Cadbury, chancellor of Aston University said this week.

Sir Adrian, who is also chairman of Cadbury Schweppes, was making the keynote address at the 13th Commonwealth Universities Congress at Birmingham University. Some 600 delegates are attending the congress which is discussing the theme *Technological Innovation: University Roles*.

He said that the relationship between the worlds of work and education was becoming closer, as economic activity became increasingly based on knowledge rather than human or mechanical muscle.

It was also too rigid to believe that education finished when work began. "The idea that a single, even if prolonged, dose of education should inculcate us for the rest of our lives is curious and outmoded. Equally the separation of knowledge from experience and education from training is inefficient to say the least, since they should reinforce each other."

Sir Adrian said a sound operational maxim was that we should back people, not projects. It was the job of universities not so much to solve the problems of the working world, but to educate those who would go out and solve them on the spot.

There was a link between education and innovation and Sir Adrian used as an example the Lunar Society (so called because they met when there was a full moon, to light their way home). This was a group of 14 men who met in Birmingham in the 1770s, including Matthew Boulton, Joseph Priestley, James Watt and Josiah Wedgwood, who had a special interest in science and its application to industry and who pooled their knowledge and experience.

The group showed the value of the flow of knowledge and ideas across boundaries and they encouraged intellectual fermentation.

But Sir Adrian said technological innovation was not an inevitable process. There needed to be an effective use for innovation and three factors were necessary.

One, there needed to be individuals prepared to persist obstinately in the face of rejection and indifference. The second element is the marketing, financial and production back up to turn individually brilliant ideas to commercial use. Thirdly, there must be a latent demand which the innovation could satisfy. All three elements were essential which was why innovation could not be centrally directed.

He said: "Technological progress in society is the outcome of a continual striving state of affairs and the need for continuity and order."

Full Congress report next week.

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## Former MP joins South Bank

Mr Christopher Price, the former chairman of the Commons Select Committee on Education, Science and the Arts, has joined the staff of South Bank Polytechnic for six months on a half-time appointment to oversee policy on biotechnology and advise on public relations.

The appointment is timed to coincide with the National Advisory Body's biotechnology initiative, which arose from recommendations in a report by Mr Price's committee. The polytechnic hopes to win new posts and equipment by coordinating bids from its departments of chemical engineering and applied biology.

## Natural posts

Four new members have been appointed to the Natural Environment Research Council. They are Professor Robert Clark, of the department of zoology at the University of Newcastle upon Tyne, Professor Richard Corne, head of the department of statistics at St Andrews University, Professor John Dewey, head of the department of geological sciences at Durham University and Mr Ferdinand Larralde of British Petroleum's Environmental Control Centre.

Professor James Briden of Leeds University and Professor John Monaghan of Nottingham University have been reappointed to the council for a further three-year term.

## Careers stand-by

More than 800 local careers advisers were standing by this week to provide advice to sixth formers receiving A level results and looking for a place in higher education. Together they will operate the Advanced Further Education Information Service, organized by the Department of Education and Science, giving up to date information on vacancies at polytechnics and colleges. Local addresses and telephone numbers for the service can be obtained from the DES by phoning 01-928 9222 and asking for inquiries.

## Principal dies

Mr James Scotland principal of Aberdeen College of Education for the past 22 years, has died, aged 65, two weeks before he was due to retire. Mr Scotland, a leading educationalist, was also a noted playwright, and comic scriptwriter for many Scots comedians including Stanley Baxter.

## Press impact

The International Council for Scientific Unions has set up a new publishing arm, the ICSU Press. The council says it aims to use the press to help communications between scientists and decision makers, through new journals and news and reviews publications.

## Down to business

Sheffield Polytechnic starts a new part-time Master of Business Administration course next month. The course lasts three years, with the first year in common with the MSc in management studies.

# Lecturers stand up against limit to Bar

by Paul Flather

Law lecturers in universities and polytechnics are angry that they have not been consulted over fresh moves to restrict entry to the Bar.

A working party has just been set up by the senate of the Inns of Court and the Bar, the governing body of the legal profession, to report on new ways of controlling the numbers wanting to take up pupillage and settle into chambers.

Until recently the Bar used to follow an "open door" policy, allowing the market to decide who should succeed or fail. There were no barriers on anyone wishing to qualify providing he or she passed the law examination.

The policy has been changing in recent years, and from next month recruitment to the Bar will be limited to students obtaining a first or second

class degree. This caused concern in university and polytechnic law departments when it was proposed. Those entering with A levels need the equivalent of two C grade passes.

The working party will now consider additional "filters" on entry, for example by following Oxbridge entry procedures and putting more emphasis on interview and selection, looking at personality and suitability or perhaps introducing an additional entry test. An annual entry limit of 600 is being considered.

One of the main problems for the profession has been the high number of people called to the Bar who have taken pupillage only to gain qualifications to practice abroad. Malaysia, for example, has in recent years sent 200 students to train in Britain. It is now setting up its own law school.

Sir Arthur Power, secretary to the

senate, said there was tremendous pressure to get into chambers and a great bottleneck among those wanting to take up pupillage. In 1979 there had been 791 admitted to the Inns of Court school of law, with 528 intending to practise and 869 called to the Bar. By 1982, 1,332 were admitted to the school, 806 intended to practise and 936 were called to the Bar. The total number of barristers went up from 4,412 to 4,864.

Mr Harry Rajak, a lecturer in law at King's College London, attacked the new plans because they would favour "acceptable types" of recruits who had done well as students. As a former chairman of the Haldane Society of Socialist Lawyers he has protested strongly at the restriction on students who get third class degrees.

"One of the most serious aspects is that there has been no consultation

with universities or polytechnics of the underlying issues. I am particularly worried that fewer and fewer law students will be admitted to the Bar in the future," he said.

The Society of Public Teachers of Law also believes it would be better to maintain the "open door" policy. Professor Philip Pettit of Bristol University, the society president, said there had been no consultation with the law schools on such changes.

Sir Arthur Power said they had no intention of stopping anyone who wanted to practise and added that academics would obviously have a different view from the profession. The senate did not want large numbers of qualified people without work to do. The 12-member working party, chaired by Lord Justice Griffiths, president of the senate, is expected to report before next Easter.

## Skills warning from ASTMS

Government policies mean that Britain will lack a workforce with the high skills needed for its industrial recovery, according to the Association of Scientific, Technical and Managerial Staffs.

The union, with members in 16 universities as well as in industry, says that Britain is weakly placed compared with their industrial competitors as that cuts in higher education as a result of government policies will curtail opportunities for higher education which would lead to those higher skills.

In a report, it says that the proportion of 18-year-olds in higher education is only 60 per cent of the proportion found in other advanced countries. "The number of research scientists and graduate engineers per head of population in the UK is only half that in West Germany and one third that in Japan."

Government is curtailing opportunities through its policy of seeking reductions in public expenditure.

Although universities and local authorities have had some success in reducing the government's plans to reduce the number of academic posts by 15 per cent between 1981/82 and 1984/85 and student numbers by 25,000, it seemed that so far proportionately more posts had been shed in engineering, technology, mathematics, and computer science than other subjects. This was because skill shortages make jobs outside easier to obtain. At universities a small increase in the proportion of the total number of students studying science subjects had been noted, but offset by the decline in total numbers.

"In general reduced funding and higher staff/student ratios are adversely affecting the research carried out in universities and polytechnics. The general conclusion can only be that highly skilled workers Britain's relatively weak position will tend to deteriorate further."



YTS trainees at the British Oxygen Company at Hammersmith. From left, Rowland Corrette, Cliff Jordan, David Lewis, Paul Walsh and Michael Joseph, all from West London.

## YTS funding 'inadequate'

Manpower Services Commission funding for the Youth Training Scheme was attacked last week as totally inadequate by Hammersmith and Fulham borough in London, which anticipates providing places for some 400 young people by 1984.

Speaking at the launch of a YTS project being run by Datasolve Education with the support of the borough, Mr John Putnam, deputy leader of the council, said that to make this up they had had to inject nearly £20,000 from the inner city area programme.

Mr Clive Soley, MP for Hammersmith, stressed the importance of quality in YTS schemes and in particular the importance of acquiring keyboard skills. He feared that those without them would become the new illiterate.

The Datasolve project is designed to

train some 20 16 and 17-year-old unemployed young people in business and office skills and computer technology by allowing them to set up and run their own company.

Youngsters on the scheme had been given a £50 float to start their enterprise called "Handy Hands" which specialized in the manufacture of cushions and aprons. So far they reported only a £1.45 profit but alongside they had acquired a far greater knowledge of business from market research, advertising and sales to stock control and accounts.

Datasolve which has already trained some 250 young people and has some 10 training centres throughout the country claims a 77 per cent rate in placing youngsters in jobs, twice the national average.

## Non-director appointed to 'Welshman only' post

The Committee of Directors of Polytechnics has chosen a non-director to represent it on the Welsh Advisory Body for higher education, after an indication from the Welsh Office that only a Welshman would be acceptable.

Mr Clem Roberts, deputy director of the Polytechnic of Wales, has been recommended by the CDP following the resignation of the polytechnic's director, Dr John Davies from the WAB because of poor health.

## Print course works out in newspaper

A four-week course run earlier this year at the London College of Printing at concessionary rates provided by the Inner London Education Authority has resulted in a pilot issue of a newspaper for the unemployed.

All 10 unemployed journalists who went on a refresher course promoted by the National Union of Journalists were eligible for the UEA's rate of £1 for the unemployed on courses in the Greater London area.

Four of them decided to try to publish a newspaper for the unemployed in London with a view to extending the readership nationally.

The pilot issue of *London Work Out* benefited from a Greater London Council grant to cover printing and distribution costs while the NUJ provided money for administrative facilities.

The issue concentrates on various government and departmental reports on unemployment, "golden rules" for getting through that awful interview, where to go for cheap haircuts and a list of "out-of-work" horoscopes. The newspaper will start coming out on a monthly basis from the end of October.

## Maths education director of OU

Norman Gower, senior lecturer in mathematics at the Open University, has been appointed as the university's first director of the Centre for Mathematics Education. He has also been awarded a personal chair.

Professor Gower, 42, graduated from the City University in 1963 and worked as a mathematician for the English Electric Company before returning to City as a lecturer.

He was one of the first lecturers appointed at the Open University when it was established in 1969 and was made senior lecturer in 1971. For four years he was OU pro vice-chancellor (planning).

# BBC gets black marks for 'Campus'

by Olga Wojtas  
Scottish correspondent

Lecturers and students have accused the BBC of betraying Edinburgh University in its six-part series, *Campus*, which ended yesterday.

"Apart from anything else, it was bad television. Most of the staff have been watching the programme instead of taking Mogadon," said one Edinburgh academic, who preferred to remain anonymous.

Mr David Bleiman, regional official of the Association of University Teachers, said the series seemed to pander to existing public prejudice about university life rather than seeking to correct this, and that many academics were upset by the poor light in which the university was shown.

BBC researchers had been in the university for some six months before filming began, but despite this, the final result was "patchy and distorted".

"It concentrated on the activities of one or two of the highest level of university staff, and didn't give a fair picture of the day to day work of research and teaching," said Mr Bleiman.

Edinburgh's student association is also critical of the series for its image of students, and is considering sending the BBC a letter of complaint.

## Six sheets help handicapped

A new series of information sheets for disabled people wanting to enter higher education has been launched by the National Bureau for Handicapped Students.

The booklets are aimed both at potential students and staff who will have to deal with them, and are an accumulation of eight years of NBHS experience as a voluntary body encouraging participation in higher education by the disabled.

Several of the first six in the series have been compiled with other organizations such as the National Union of Students and the Royal National Institute for the Blind.

The first six comprise a guide to financial help for disabled students, a directory of specialist careers officers, advice to handicapped students and their parents on applying to higher education, meeting personal care needs, and pamphlets for the deaf and the blind.

Additional ones are planned for curriculum planning, special needs for Educationally Subnormal students, those with spina bifida, haemophilia or dyslexia, and for coordinators of handicapped students.

Single copies of the information sheets are available free to handicapped students sending an a.s.c. and varying from 50p to £1.50 for others, from the NBHS, 40 Brunswick Square, London WC1N 1AZ.



A student from Breton Hall College of Higher Education models one of the designs included in an exhibition of final-year work on the BA and BEd fashion and textiles courses held at Wakefield City Art Gallery. Several of the collections were sold while other students were commissioned to produce further designs.

## £4m project will spark computer-aided engineering

Leeds and Loughborough universities are about to embark on a £4m joint project in computer-aided design and manufacture in collaboration with engineering firms and the Department of Trade and Industry.

The project has grown out of an earlier £1m effort based at Leeds to develop geometric modelling techniques for engineering design. The first three-year project began winding down in June and the department and companies involved were impressed enough to look for a follow-on project to take the same techniques into manufacturing.

The link between Dr Alan de Pennington's team and Leeds and the department of engineering production at Loughborough, is intended to achieve this. The Department of Trade and Industry is also keen to develop the project as part of its support for advanced manufacturing technology and will provide around a third of the money for the second stage.

Dr de Pennington said: "The transformation in the Department of Industry in the last two years has been

amazing." He stressed their enthusiasm for the project. The rest of the money for the next three years will come from the two universities and around 10 outside firms, five more than had a stake in the first phase.

Dr de Pennington explained that the team's ultimate aim was to develop programmable automated manufacturing systems. Computer systems at the two universities will be linked by landlines and researchers from the companies involved will go to Leeds or Loughborough to gain experience with computer-aided design and manufacturing.

The two universities are one jump ahead of the Science and Engineering Research Council, which aims to launch a new directorate for the application of computers to manufacturing engineering later this year. The directorate will back research projects and postgraduate training to ensure that there are enough engineers to run this kind of system being developed in the Leeds-Loughborough project when they find their way on to the shop floor.

# Overseas news 'New powers' move by Jayewardene

from D. B. Udalgama

President J. R. Jayewardene has removed all vice chancellors and directors of university colleges and re-appointed them with more powers, in a move to take effective control of universities and maintain discipline more effectively.

The president, also minister for higher education, made the move as an emergency regulation under the Public Security Act. It is the sequel to turmoil in the universities, highlighted by some 500 undergraduates at Peradeniya University who protested against the suspension of six students.

Some university lecturers were accused by President Jayewardene in an address to his party of being the local leaders of a strategy which planned to take over the country through a three-stage plan.

The vice chancellor, Professor B. L. Panditharatne, closed the university and ordered the students to quit the halls of residence but some of them defied the order, taking the dean of the faculty of science, Professor H. W. Dias, hostage for six hours and forcing the vice chancellor to agree to all their demands. They also felled trees to barricade the approaches to the halls and six students, including two Buddhist monks, started a "fast unto death" which they abandoned after agreement was reached.

But the authorities repudiated the agreement on the ground that it was obtained under duress and in a pre-dawn swoop on the halls the police evicted the demonstrators.

The suspension of the students followed a report by a three man committee which inquired into incidents of violence at Peradeniya last December in a clash between two student factions.

The dean and heads of departments have also been removed, and must be reappointed or replaced by the vice chancellors or heads of university colleges. Not all of these dons may be reappointed; some considered "unsuitable" will go out of office.

Professor S. F. Kalpage, chairman of the University Grants Commission and secretary of higher education, was

quoted as saying that academics who will be responsible to the president and who would be able to turn things without hindrance will now be at the helm of the universities.

This situation will prevail for as long as the emergency is in force. The vice chancellors removed and reappointed are: Professor Stanley Wijesundera (Colombo), Professor B. L. Panditharatne (Peradeniya), Professor Willie Mendis (Moratuwa), Professor S. L. Kekulewela (Kelaniya), Mr Karunasena (competent authority, Sir Jayawardhanapura), Professor S. Vithyanathan (Jaffna), Professor S. Rajaratnam (Batticaloa) and Professor G. P. Samarawickreme.

Meanwhile, students of the faculty of medicine at Colombo University have obtained an interdict from the Appeal Court on the second MB BS examination which was to have been held in the middle of July. They opposed students of the Private Medical College being allowed to sit the same exam as themselves, arguing that admission to the private medical college was on different criteria.

Some academic education still carries a considerable prestige value in Czechoslovakia, as in other central European countries, this propaganda campaign was doomed to failure.

## Query over Czech numbers

Czechoslovakia is said to have introduced massive cuts in university intakes this year, which may mean that only 50 per cent of applicants can obtain entrance to a university or institute of higher education.

According to a report from the Yugoslav news agency Tanjug there is a considerable shortage of jobs for graduates in Czechoslovakia, particularly for doctors, dentists, engineers and economists. The job situation, which is particularly grave in urban areas, has been building up over several years, so that the education authorities have been urging pupils finishing primary school at 14 not to go on to grammar school but to enter a vocational-technical school, leading to a qualification in some skilled trade.

Since academic education still carries a considerable prestige value in Czechoslovakia, as in other central European countries, this propaganda campaign was doomed to failure.

There can be no doubt that the world recession, which has hit Czechoslovakia badly, is making itself felt in the higher education sector, particularly in subjects and faculties not of immediate importance to the economy. There have, however, been several official denials recently that the applied research base is liable to be cut for lack of funds.



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## Call for restoration of research funding

from Lindsay Wright

**WELLINGTON** A substantial drop in research funding for New Zealand's universities has prompted approaches to the University Grants Committee by the universities to seek at least the restoration of the levels of funding of the mid-1960s.

Auckland University has told the UGC that its research fund (used to finance major projects and more expensive equipment), its scholarship fund and its postdoctoral fellowships are all inadequate. A report by the university research committee says: "In constant value dollars the funds disbursed by the UGC Research Committee fell from \$2.59m (£1,126,000) in 1968 to \$1.11m (£480,000) in 1982, a decrease of 57 per cent."

The report pointed out that, in sharp contrast, the science budget of the National Research Advisory Council grew from \$80.3m (£39m) in 1968 to \$168.3m (£73m) in 1982, an 86 per cent increase. "To support the postgraduate teaching and research which underpins this (national) effort, the UGC research fund should have grown to \$4.84m (£2m) last year."

The UGC scholarship fund, the Auckland report argued, has declined in constant dollars from \$2.52m (£1m) in 1968 to \$1.2 m in 1982, and should have grown to \$4.70m (£2m). The scholarships, providing financial support for doctoral students, have been halved in real value over that period and are now internationally uncompetitive.

While overall student numbers rose

by 30 per cent over the decade to 1982 new PhD registrations have dropped and Auckland University has asked for the value of UGC postgraduate scholarships to be doubled to \$8000 (£3,478) a year - a little under the current Australian level.

Postdoctoral fellowships, seen by the New Zealand universities as both a vital source of knowledge and as an important recruitment avenue, have also been under threat in New Zealand. Australia's Research Grants Scheme is funding 130 such fellowships this year while New Zealand's UGC is funding none.

Individual universities fund fellowships from their own resources and Auckland University, New Zealand's largest, is able to award only three postdoctoral fellowships in 1983. The university has told the UGC that the one-year term of postdoctoral fellowships commonly offered in New Zealand is internationally unattractive and the salaries offered are uncompetitive.

Auckland has suggested that the UGC establish a postdoctoral fund from 1984 sufficient to allocate monies to the universities for 30 new postdoctoral fellowships a year at \$21,600 (£9,300) a year. This would cost about \$2.4m (£1m) in 1984 and rise to \$4.8m (£2m) by 1986.

The current situation, the Auckland report said, is undermining the ability of New Zealand's universities to pursue a strong programme of postgraduate teaching and independent, as opposed to contract or mission-oriented, research.

## Student press clamp down follows speech row

from Carolyn Dempster

JOHANNESBURG

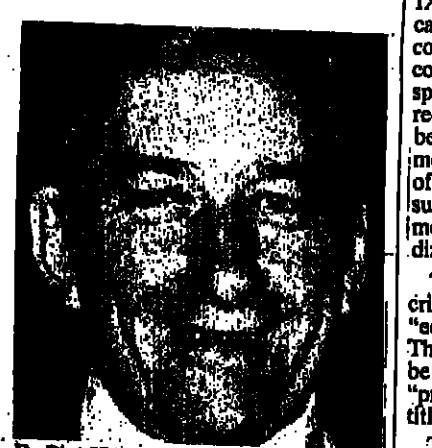
Restrictions placed on the liberal University of Cape Town's student press in recent weeks have indicated that press freedom is not only at risk in the "commercial" sector in South Africa. In May the UCT authorities clamped down on the official campus student newspaper *Varsity* which reported a speech delivered by the Minister of Cooperation and Development (Black Affairs) Dr Piet Kooenhorst, to first-year political science students. In an almost unprecedented move the vice-chancellor Dr Stuart Saunders ordered the withdrawal of the publication because it was unethical and contained information given in privileged circumstances.

The editor of *Varsity*, Mr Nic Boraine and 17 other students were then charged with having defied an order by the vice-chancellor not to publish anything on the speech, and were prosecuted by a university disciplinary court.

Last week, the court imposed a suspended sentence of rustication, which (if it comes into effect) means the students may not hold office in any UCT student society, body or publication for two years.

The rumpus originally arose over an assurance the political science department head, Professor Robert Schrire gave to Dr Kooenhorst that the lecture was off the record.

The students denied that the professor informed the class of this arrangement and stressed that they would not have published had this been the case. In any event, other students had a right to know what Dr Kooenhorst was saying.



Dr Piet Kooenhorst: told that speech was 'off the record'.

particularly as the minister was airing liberal ideas on reform, they added. The row assumed grave proportions when Dr Saunders first imposed a six-day ban on publication of the speech, which *Varsity* broke, and then banned *Varsity* and the entire SRC press from publishing anything on the issue until the matter was resolved.

About a week later a meeting of 700 staff and students voted in favour of a motion urging the university not to invite cabinet ministers to speak on campus.

It is ironic that this is the second time that the presence of the same national party cabinet minister has led to student administration friction on a liberal campus, with the authorities' incident occurred at the University of the Witwatersrand during June 1981 during the height of anti-republic day rallies.

## International help for university of the sea

by Thomas Land

A university to provide top-level training for senior maritime administrators in the developing countries has been set up in Malmö, southern Sweden. It is intended to reduce the rate of accidents at sea and eventually the rate of pollution of the state of the ocean.

The institution, which is financed by many sources, including the Swedish Government, will have a number of international advisory boards, such as the Swedish Government.

been created in response to the growing demand of many developing countries to launch their own national maritime fleets in order to enhance trade. The UN's International Maritime Organisation (IMO) has set up a World Maritime University (WMU) in Malmö, Sweden. The primary function of the new

It's not nepotism as such, more artistic licence...



## Scandal over art degree

from A. S. Abraham

BOMBAY

The prestigious J. J. School of Art in Bombay, named after the Parsi philanthropist who founded it, and housed on the site of Rudyard Kipling's birth place has had its reputation badly tarnished by an examination scandal directly involving a director of art of Maharashtra State who is also a former principal of the institution.

The director's son, a student at the school, was given a first class by examiners. But the moderators, who re-assess the examiners' decisions and who finally decide, thought otherwise and gave him a second class.

The director, Mr. Daburao Salunkar, in an extraordinary exercise of authority, then summoned a meeting of examiners and moderators. But the latter stuck to their guns and resigned en bloc in protest. The provincial education minister ordered a departmental inquiry into why the moderators had resigned.

The director asked a special committee, chaired by none other than himself, to reassess his son's papers. To his credit, the ten-member committee, comprising eminent people in the art and advertising fields, upheld the moderators' decision.

The art director remains in his post.

## Equal rights law must be clarified

from Janet Hook

WASHINGTON

The Reagan administration has asked the Supreme Court to limit the application of a law prohibiting discrimination against women in schools and colleges that receive financial aid from the federal government.

Rejecting what it called an "expansive interpretation" of the law, the Justice Department has challenged the view that Title IX of the 1972 Education Amendments prohibits sex discrimination in all aspects of a university if any part of the institution receives federal assistance.

Instead, the Justice Department has advanced the controversial view that Title IX regulates only those specific courses within a university that directly receive federal aid.

Women's rights groups contend that the administration's reading of the law would severely weaken anti-discrimination sanctions, by allowing one part of a university to receive government subsidies while other parts practice sex discrimination.

Questions about the scope of Title IX have been raised in many court cases, including legal disputes over colleges' treatment of women in intercollegiate athletics. Although college sports programmes typically do not receive direct federal aid, Title IX has been cited as prohibiting unequal treatment of women athletes if other parts of the university receive federal aid. In such cases, it is argued, government money can be used to indirectly subsidize discriminatory practices.

The law expressly prohibits sex discrimination in federally assisted "education programmes or activities." The key legal question that has yet to be settled in court is how broadly the "programmes or activities" covered by Title IX are to be defined.

The narrow interpretation endorsed by the Justice Department has drawn heavy criticism from women's associations and civil rights advocates, and from their allies in Congress, who say that the law should not be limited to those specific departments or sub-units of a university that receive federal aid.

The controversy has come, ironically, at a time when President Reagan, has been trying to boost his sagging political support among women and members of minority groups.

The Justice Department presented its interpretation of Title IX in papers filed with the US Supreme Court during its 1983/84 term. (The case has been brought by Grove City College, a small college in Pennsylvania, that claims it should not be required to comply with Title IX because it received no direct federal assistance.)

Although its students receive government grants and subsidized loans to help pay for their tuition, the college has argued that aid to its students does not constitute aid to the institution.

The college has not been accused of sex discrimination, but it has been taken to court for its refusal to sign a government form assuring its compliance with Title IX.

Grove City brought its case to Supreme Court after the federal appeals court ruled that the entire college was subject to the anti-sex-bias law because the whole institution benefited indirectly from students' receipt of tuition assistance.

## Move to speed up women's chances of promotion

from Geoff Maslen

MELBOURNE

Tertiary institutions, the Commonwealth public service and private employers will have to offer accelerated promotion opportunities for women under legislation being planned by the Australian government.

The legislation would require public and private organizations reliant on the Commonwealth for some or all of their income, to submit "affirmative action plans" to the proposed Human Rights Commission.

The plan would be a description of how the organization intended to provide increased opportunities for "appropriately qualified and experienced" women to move into more senior and responsible positions.

Businesses or institutions which failed to take affirmative action could suffer monetary penalties. For instance, a company's affirmative action policy could be taken into account when government contracts were being awarded.

The federal minister for education and youth affairs, Senator Susan Ryan, told an audience at Melbourne University last week that the affirmative action legislation would be part of the government's programme to eliminate all forms of discrimination against women.

The first step will be the passage of the Sex Discrimination Bill currently before the parliament which outlaw discrimination on the ground of sex, marital status or pregnancy in a broad range of areas including education and public and private employment. The bill also provides for protection against sexual harassment in education and employment.

The second step will be the introduction of the affirmative action programme in public and private employment. Next month, the government will release a green paper on affirmative action which will include draft legislation.

Senator Ryan said: "Every tertiary institution will be obliged by law to develop and submit to the human rights commission an affirmative action plan."

This plan will be a description of

how the university intends to promote appropriately qualified and experienced women in an accelerated time frame to achieve reasonable progress towards equality over the next few years.

The draft legislation will be based on a private member's bill, put forward by Senator Ryan in 1981. That bill proposed to cover employers with 100 or more employees but it was now thought this figure may be too low.

The intention was that women would still be employed or promoted on the basis of merit, but the employers would assume responsibility for providing appropriate training programmes to give women the qualifications and experience they need to compete equally with men.

A recent study of the Commonwealth public service had shown that women made up only 2 per cent of those on the second division level. At present rates of employment and promotion, this figure would be 4 per cent by the year 2000. Senator Ryan considered this situation to be most unsatisfactory.

She said that fewer than 17 per cent of the total university full-time teaching and research staff were women, yet women made up 43 per cent of employees at the lowest level of lecturers and demonstrators. At the level of lecturer, women made up 10 per cent of the number, and the level of professor was only 2 per cent. The lower level positions did not carry with them the benefits of tenure, so the majority of women academics held untenured positions.

University administrations and staff associations reacted cautiously to news of the planned legislation. Ms Jane Nichols, a research officer with the Federation of Australian University Staff Associations said that many academics would be alarmed if university appointments were made other than on the ground of scholarly merit.

But she said women were often disadvantaged in not being able to have as many research papers published as men, in having Australian rather than overseas second and third degree qualifications, and in not being as mobile as men in seeking new jobs.

The US Agency for International Development has just built AUC a new library and contributes 27 per cent of the university's \$17m budget. But with only \$8.5m in endowment, the school also depends on contributions from alumni and corporations.

"Mobil ARAMCO, Amoco and Chase Manhattan gave to the school because they plan to be here in the Middle East for a long time," said Dr Pedersen. "They want to support other American presences and we're one of the few viable US institutions in the area for a long time."

Under Nasser, after the 1967 war relations were cut with the US until 1973 and the American University in Cairo was the only American institution operating there - a window to the world, according to Dr Pedersen, a former US ambassador to Hungary.

"Egypt is a middle-sized country where everyone needs to learn how to

## Of mice and men and money

Sally Festing visits the Jackson Lab in Bar Harbor, Maine.



Mount Desert Island is a strange place for a huge biomedical research centre. But its wild beauty attracted wealthy Americans and their private philanthropy floated the Jackson Laboratory, more than 50 years ago. The landscape came first and in a way it still does; as a potent backdrop to everything that happens within 200 odd square miles, surrounded and deeply invaded by the sea.

Maybe it is vacation land for the milling tourists; for the majority of Maine's population however, summer is the peak of activity and this includes Bar Harbor's scientists. Not until the fall does routine simmer down so they can go on holiday.

From all over the world; geneticists, immunologists, histologists, virologists, cell biologists, embryologists and people involved in aspects of cancer research, fly in on the island's 12-seater aircraft to take part in courses, exchange information and pick the brains of the residents. Three years ago, Nobel-prizewinner George Snell put the Jackson lab on the map for his work on tissue transplantation, investigations that laid the foundations for kidney and other organ transplants.

On home ground it was no surprise; long overdue, is the comment one receives from those who understand the quality of his work. Yet it caused a flurry of excitement and while they were in the spotlight, it was a good time to ask what it is, apart from the physical milieu, that makes the lab unique.

The portrait of founding director, Dr Clarence Cook Little in the reception area suggests an answer. This immensely influential, bright-eyed man in a white lab coat holds a mouse by its tail in the palm of one hand; beside him, a wooden mouse cage betrays the daily and several other mice inside an observation jar, plus a card index box to spell out the story. At a time when very little work had been done in the field, Little saw the key to biomedical studies of the future locked in mammalian

genetics and for implementing such studies, he chose the mouse. Today, much of his theory has been realized; his labs have the largest number of inbred, or constitutionally identical mice strains anywhere, and the largest concentration of mammalian geneticists. There are 35 scientists in a total of 300 staff.

But if cancer research was foremost in the mind of the director and the independent Jackson laboratory; other biomedical studies were soon involved. Mice are similar to humans in many physiological traits and they develop or inherit many of the same diseases; the initial five or six strains exhibited characteristics that paralleled such human problems as muscular dystrophy, anaemia and diabetes.

Moreover, they were ideal for experimental tissue grafting. If it is possible to transplant tissue from one inbred mouse to another, what controls the capacity for acceptance or rejection? Then practical problems of husbandry; reproduction and diseases of the mice themselves became important.

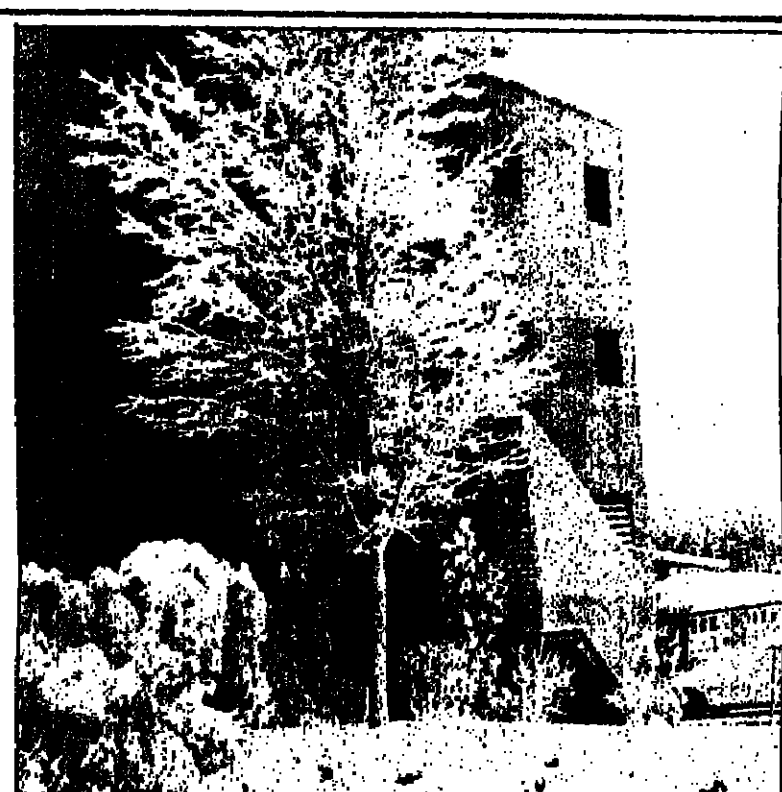
Staff moved in to work with the fantastic collection of weird mutant strains and the lab began to answer a far flung demand for its stocks from other research institutions. The resource side of the venture is important in its own right because, when a university professor retires, his stocks disappear with him. It was pointed out that plenty of American universities have longstanding commitments to football but none to mice, whereas the Jackson lab has provided a continuous home for its colonies, appointing and retaining staff to work with them. Two

million mice are distributed annually throughout the world providing approximately one half of the lab's income; remaining funds are provided by National Institutes of Health and other public grants (50 per cent) and private donations (2.5 per cent). But the time has come to reassess, says the present director, Dr Barbara Sanford, who hopes that the private contribution will increase proportionately.

To some extent the lab's careful image promotion and its efforts to inform the public about its work reflect the debt it owes to private support. A fund-raising committee keeps an office in the building and twice a week, an hourly film and discussion programme is held for members of the public in a new lecture theatre. To the uninitiated, Mendelian laws of inheritance are spelled out; fat mice, thin mice, naked (hairless) mice and crooked mice blown up on a screen and the personal contribution of different scientists is explained in their own words. This is what we are trying to do, this is its relevance.

No moral justification is felt necessary for using animals. Would a similar organization in Britain invite comment so freely? It could be argued that most people are convinced by rational explanations and hard core extremists can be convinced by anything; but the fact remains that we have more extremists. Perhaps, though, the most emotive claim is that research has once again returned to cancer; and who doubts, a respected ex-member of the staff told me, that when it comes, our real understanding of cancer will be based on work with mice.

Promoting interest in basic research and harnessing talent are the objects of the summer schools; to which end the lab opens its doors for nine weeks to about 20 selected school leavers, college and graduate students. Each one conducts his or her research project in conjunction with one of the staff scientists. They tackle quite sophisticated problems in varied fields and



Winter wonderland: the laboratory stands amid the wild beauty of Mount Desert Island.

with luck, the results can be incorporated directly into the scientists' work. But the great tribute to the course is that more than half its past students remain in science, according to a 1979 survey, 70 per cent take PhDs and two have collected Nobel prizes.

Dr Sanford is qualified both in business studies and as a mammalian geneticist. She admitted that not many women have major administrative jobs at her level but she prefers to play down the fact and she is excited by the challenge. Following two years' stability since she took over, the lab is on the brink of expansion.

The fashion in biology is towards genetic engineering and they have always promoted an interdisciplinary approach. Real progress, she feels, will result from liaison between classical

geneticists and molecular biologists. A wing named in Snell's honour affords the space and they are on the look-out for new scientists.

Never was it more important to find the right man or woman for the job. Work can not be the sole consideration; it is useless taking on someone who hankers for ballet or the big city, or where a wife or husband studies.

say, Ancient Egypt. Since the island is isolated and Maine winters are harsh, a quality of self sufficiency is important. Fine for an outdoor lover, someone prepared to take up cross-country skiing, or raise pine trees and enjoy the social activities of a close-knit community. Most of all, it helps if the Jackson lab recruit is alive to the raw scenery of Acadia National Park, for there is richness in the silver birch and granite peaks.

## Ben Barber reports on the American University in Cairo, the 'Stanford of Egypt'

## Where Middle East meets Mid-West

In the calm and shady courtyards of the American University in Cairo, Egyptian and American students chat over coffee and textbooks between classes.

In their stylish French and American clothes they cut a different figure from the majority of Cairo's 14 million inhabitants, many wearing galabias and black headscarves for women.

"We're the Harvard, the Stanford of Egypt," says AUC president Dr Richard Pedersen in a recent interview here. "We've got the top intellectual clientele, the best students - people from the establishment."

Assessing President Anwar El-Sadat's daughter-in-law studied here and President Mubarak's wife graduated last year and is chairwoman of the international alumni committee. Mubarak's two sons also attend the 63-year-old university and the Shah of Iran's son also studied here along with children of other African and Middle Eastern leaders.

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communicate with foreign cultures," says AUC graduate Hamdi Saleh, a diplomat with the Egyptian embassy in Washington. "We are not an India or a China that can afford to close its borders."

The graduates of AUC are better equipped to deal with the Western world. Through communication with foreigners they have learned to deal with the outside world.

The American style of education differs from the French style education offered free to 300,000 Egyptian students at the government-run Cairo and Ain Shams universities. AUC classes are small, students can meet privately with teachers, half of whom are American and they write original papers. "We teach them to think analytically, to solve problems, not push paper. That's the American system. The faculty-student ratio is 12 or 13 students per teacher."

The vast Egyptian university system which burgeoned in 1961 when nationalized by Nasser - when, according to diplomat Saleh, education became free like water - puts emphasis on memorization of texts and lectures rather than individual input.

Tuition at the American University is \$1,098 per year for Egyptians and \$4,000 for Americans. Although the average income of Egyptians is only \$480 per year according to the World Bank Development Report, university officials claim the stringent English fluency requirement is more a barrier to applicants than the tuition.

More than 10,000 students also take special adult education courses such as language and office skills at the university which is expanding its popular business management courses. Americans largely study Arabic and Middle Eastern studies.



AUC students chat over coffee and textbooks.

do not see any trouble," said Pedersen. And with the growing involvement of the United States in this part of the world, due to oil and the Arab-Israeli conflicts, AUC seems likely to play an increasingly vital role as a cultural bridge between the two widely differing economies, religions and languages, despite the tension of a cultural encounter.

AUC offers an American-style liberal arts education plus facility in American language and lifestyle through contact with American students and faculty. But relations between the 200 US undergraduates and 1,800 Egyptian students are said to be generally distant and cold.

In its extreme, one American student barricaded the door to his apartment in terror after his Egyptian girlfriend refused her father's demands that she take a virginity test. The brothers the girl phoned to say they would come over to kill him. Violence was avoided in this case but the girl between cultures was perhaps the real culprit.

"American students don't mingle with Egyptians," said last year's student union president Mustafa Ghawash. "There's no bitterness between us but they tend to stay separate."

"I have not been invited to people's homes from the university," said Martha Dennis, of the University of California at La Habra. "People are very friendly but most won't go out of their way to meet Americans. It's like two teams."

"It's difficult to have an American friend," explained one Egyptian woman student. "They don't try to get along and are very critical of Egyptian traditions. In Europe and America a teenager can have sex. It's their way and I can understand. They should try and understand our culture."

plained: "at first you say it's a different culture. But then you have your bad days and it gets to you. People bang into you and don't say 'excuse me'. They take cigarettes without asking. He resents the invasion of privacy in this crowded, poor nation where people tend to take things as they come. They say *Inshallah* all the time. It means 'God willing'. It's not like the Western attitude that you have your opportunity one time and you've got to grab for it. They believe it comes around and around."

Americans here also feel guilt and then hostility towards the presence of servants. "They come and clean our rooms and treat us like gods," said Ricciardi. "After a while though you feel like you're just another penny they can make."

"I've been able to adapt very well to life in Cairo but now it's beginning to get on my nerves," said Dean Ricciardi, a 1982 year-abroad student from New York State University in Binghamton. "Once the novelty wears off there's a deep state of depression. One American committed suicide here."

Ricciardi served on the high board of the student government and prided himself on a growing ability to communicate in Arabic on trips through the dusty and teeming back streets of Cairo, where non-Egyptians seldom walk.

In a squalid tea shop, over a cup of strong, heavily sugared tea, he ex-



# The path to fame but not fortune

Victoria Keir outlines the financial difficulties faced by dance students

Dance in Britain is booming. In fact, according to the Arts Council's last report, it is the only art form which is showing an upward trend - with contemporary dance in particular enjoying an enviable success when it comes to packing in the audiences.

The reasons for this boom are varied and complex. But a lot of the interest has come off the streets, generated in the younger age groups by films such as *Flashdance* - both of which carry the message that you don't have to be white, middle-class or into ballet to get enjoyment from dance.

Series such as BBC's *Dance Movement* and the dance companies themselves have been cultivating wider audiences - most contemporary dance groups at any rate usually include a school, matinee or workshop at each stop of their provincial tours.

There are dancers in residence employed by local authorities to work both in schools and in the community and most secondary schools include some kind of dance and drama in the syllabus. There is even a new dance O level - with a practical section plus theory - which began this year.

It's a pretty rosy picture - until you leave secondary school. Then the problems start and as usual, are mostly to do with money.

Apart from the degree courses, which are eligible for mandatory grants, aspiring dancers must apply for a discretionary grant. Since most degree courses involve only 20 to 50 per cent of their time for dance, this means that the people who will go on to be performers, teachers and choreographers are at a financial disadvantage.

According to Mr Peter Connell, assistant to the director of the Council

for Dance Education and Training, the rate at which awards are given by local authorities varies widely. "Some are at the same rate as mandatory awards, some are widely discretionary. We sent out a questionnaire to every local authority last year asking them to state their policies on awards for dance - we got 42 replies," he said.

Some authorities - of those which did reply - said they awarded grants for dance only in exceptional circumstances, although what those might be and the reasons for adopting this kind of policy were not made clear.

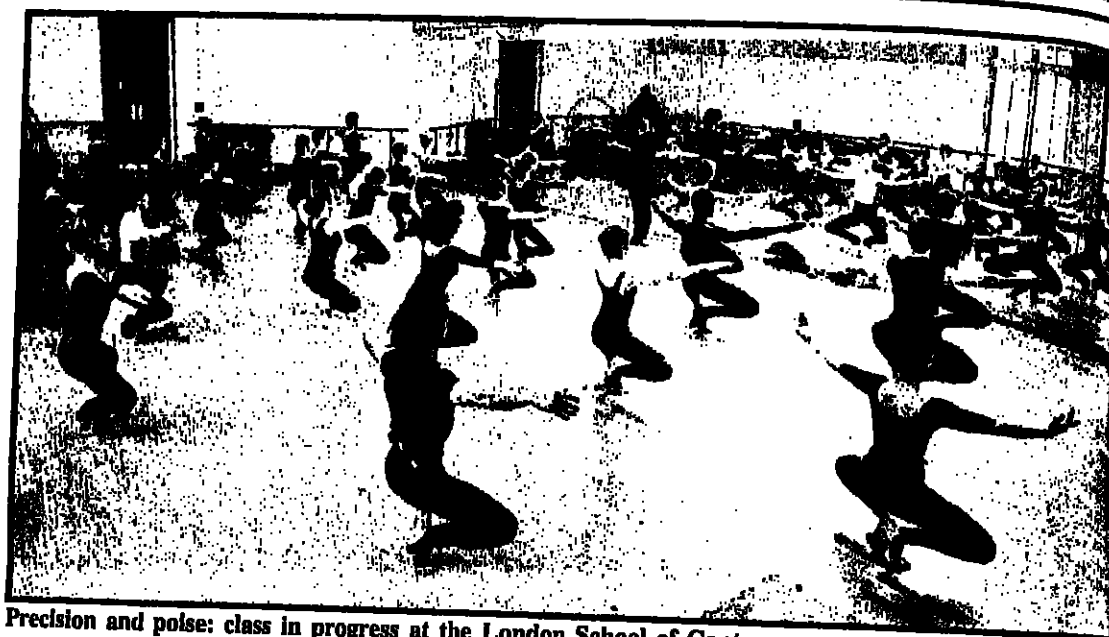
There is the local authority quoted by the Advisory Centre for Education in its information leaflet which said they awarded grants for "acceptable" and "unacceptable". "Unacceptable" subjects included fine art, music, beautiful studies and, of course, dance.

The Council for Dance Education and Training is inclined to take a philosophical view of this kind of attitude. "There is little point in trying to change the system," said Mr Connell. "What we can do is to write in support of applications on behalf of the schools."

"We would more than love to see grants for dance become mandatory, but then there is the problem of fees, which are much higher because the dance schools are smaller."

The council was set up in 1978 as a result of the Guilbenkian report on dance education and training. It accredits dance schools through out the country which are continuously monitored and they also assess applicants for discretionary grants at the request of local authorities.

Peter Connell points out that there



Precision and poise: class in progress at the London School of Contemporary Dance

are good reasons to be wary of handing out dance grants indiscriminately. It has to be ensured that the applicant is physically strong enough and psychologically suitable for what is a hard life. Dancers have to be tough as well as intelligent and hard working. Most of the dance schools, however, insist on a medical examination when auditioning.

Some local authorities give out more dance grants than others, and those applicants unlucky enough to live in an area where dance grants are few and far between, find that at the assessment level, not just the level at which they may already have been accepted.

"Of course this is unfair like it is unfair that some authorities may give out 60 grants to dancers and another authority not give out any," said Mr Connell. "But people are beginning to question this and we hope that slowly attitudes will begin to change."

He is sceptical about complaints of Government cuts and lack of money. "Obviously, that has made the problem worse. But a lot of the authorities base their decisions on attitudes which

have been held for years. Some authorities won't even accept our list of accredited courses, preferring to draw up their own. How they go about drawing up their own list I don't know."

While the council doesn't want to agitate for a change in the grants system, Mr Connell thinks there is a case for a consistent nationwide policy on dance, given the amount of dance activity in Britain.

The Rambert Academy - in a unique position in that it is part of West London Institute and thus part of the maintained sector - has found that there are advantages to being part of the establishment, although it is quick to point out that its students still face drawbacks in other ways.

Peter Connell does not think that the future is totally black. Apart from a growing public interest, there have been developments such as the setting up of the Regional Dance Council, involving Barnet, Enfield, Haringey and Hertfordshire. The council was set up by David Henshaw, head of the school of dance at Middlesex Polytechnic with the aim of bringing

together a breadth of dance interests from both the private and maintained sectors.

Hopefully, things will change. And it takes commercial success to change people's minds, then there is a lot of about. The Pineapple Centre and the Dance Centre in London both do a service to the community at the same time. Where would these places be without the trained dancers who lead the thousands of Londoners who had there to work out?

Wayne Sleep and his travelling show, DASH, have brought a smile to the face of many a provincial theatre manager and shows like *Cats* and *Snow and Dance* (all of which have starred the diminutive Mr Sleep at one time or another) have had a few West End managers smiling too. Not to mention the fact that in these days of increased leisure, we need dancers to help us extend our bodies as well as our minds.

So if the local authorities are looking for a return on their investment, argues Peter Connell, they could do a lot worse than put their money in dance. Who knows, it might not quite be popular with the ratepayers.

John O'Leary assesses the British Council's higher education division

## Diplomatic solution accepted

The controversy which surrounded the rationalization of Britain's academic aid system is hardly more than a distant memory as the time approaches for the first review of the new arrangements. Predictions of a loss of confidence in universities at home and abroad, suffocating bureaucracy and the end of previous cost-effectiveness are now generally agreed to have been wide of the mark.

Although the British Council's higher education division has its critics still, they are far more muted than when its formation was under discussion in 1979 and 1980. As its first controller, Mr Geoffrey Tribe, retires, most of the vice chancellors who feared the loss of their cherished direct contacts with universities of the old Commonwealth have been pleasantly surprised. Some even claim that the absorption of the Inter-University Council for Higher Education into the larger organization has changed the British Council's methods more than the universities.

Their worry at the time, most publicly expressed by Mr Richard Griffiths, a former director of the IUC, was that the operating methods of the two organizations were incompatible, and that a merger was unnecessary, and probably damaging to the services provided. Mr Griffiths had always insisted that the taxpayer received 23 of operational activity per pound of expenditure through the IUC, thanks to free services provided by the universities. Whereas the British Council provided only 2p worth of operation per pound of investment.

So fraught was the merger that even when the terms had been finalized a struggle over who should head the new division held up a final agreement until the last possible moment. Mr Griffiths' successor, Dr Alan Russell, appointed to the directorship of the IUC in a memorandum from the BBC, set out through whom the British Council would appoint its first director. Dr Russell had been a member of the IUC since its formation in 1979. He was to be the first of a new breed of academic who would work on parallel projects with the British Council, and would be able to draw on the resources of both organizations.

protecting the new division's budget and appointing the chairman of the committee overseeing its work. Mr Jack Butterworth, vice chancellor of Warwick University, to its board. The universities' answer is well illustrated by the calibre of membership of Mr Butterworth's Committee for International Cooperation in Higher Education. It now includes both the present and future chairmen of the University Grants Committee, the chairman and Vice Chancellors and Principals and several other senior vice chancellors. It also boasts similarly powerful figures from the public sector, which has been brought in since the demise of the IUC.

Mr Tribe had expected something less than wholehearted enthusiasm for the new venture, especially at a time of spending cuts. But apart from a general desire to put matters on a more businesslike footing, particularly where academics' salaries were concerned, he found almost universal readiness to continue existing partnerships and to investigate new areas of the world opened up by the British Council.

More than 100 countries' universities, most in the Third World, now have contact with British institutions. And although the new committee's budget is not much larger than that enjoyed by the IUC at the end of its increasing. Only this week, for example, a new scheme of research partnerships between Britain and Spain was announced. Following on from similar schemes run by the Spanish with France and Portugal, British researchers will work in Spain, while Spanish researchers will work in Britain. Grants totalling £55,000 from each country will enable the researchers to travel to the other's universities or, if necessary, to the United States.

Indeed, the emphasis on science and technology has been one of the main changes since the rationalization. There is now much more selectivity about the subject matter of sponsored academics going abroad, with a corresponding increase in the difficulty facing those in the arts and social sciences applying for foreign visits.

The other major change, apart from the increased range of countries covered since the IUC's limit of 28 countries ceased to operate, is the involvement of British Council officials abroad in the selection and fulfilment of projects. In the past the council's work, the foreign representatives have control of projects in the countries for which they are responsible, but the academic work is discussed with the higher education division and with the university, college or polytechnic involved.

Dr Frank Thistlethwaite, the former vice chancellor of the University of East Anglia, who negotiated the rationalization as the last chairman of the IUC, sees this as one of the main strengths of a successful enterprise. "We had a pistol put to our heads by the IUC, but things have gone very well. Some of our old overseas relations don't exist now, and there's no doubt that the council is a vast organization and it's much more bureaucratic. But I think the vice chancellors are beginning to realize the advantages."

Next month Mr Malcolm Dalziel takes over as controller of the higher education division after a spell as the council's representative in Egypt. Less than a year he will have to face the formation of the new division, largely as a result of those who were opposed to the merger with the IUC. It will be a high-powered affair, involving Sir John Burgh, the director general, but few people inside or outside the council think Mr Dalziel has much to fear. It was always going to be too late to revive the IUC but, despite an understandable sense of nostalgia and loyalty among some of those most closely connected with the old organization, it is a measure of the success of the new system that few would wish to go back.

## John Tierney compares developments in police education in Britain and the United States

While it may be some time before the average Special Patrol Group officer or post-Scarman "community policeman" spends his off-shift time discussing the ins and outs of interactional accounts of juvenile justice, in recent years there have been movements in this direction. We are already beginning to see the results of a fairly quiet, though important debate which has been going on since the late 1970s. It is a debate which grew up around the fact that British policemen and women generally possess only minimal academic qualifications.

During the 1970s a few unsuccessful attempts were made by senior officers to persuade some universities to provide degree courses specially tailored for police officers. Although the Police Staff College at Bramshill has for many years provided advanced courses for a select band of officers being groomed for managerial stardom, a growing number of senior officers wanted high-level educational programmes to be provided outside the police institution. In 1978 a working party of the Association of Chief Police Officers produced a document which turned potential recruits for such an education away from the universities and in the direction of the polytechnics and colleges of higher and further education. The report firmly believed that any courses for police students should be based upon "subjects readily recognizable as professional police subjects or so close in association thereto as not to strain credibility". Thus the idea developed of a programme of study at HNC and HND level, then at honours degree level, which would be especially relevant to police officers. What this meant was indicated by the working party when they argued for "a steady state of the society for police and an appreciation of the socio-economic factors which may dispose people to behave in a manner inimical to the legislation of the day". Whether they had in mind bank robbers or Greenham Common women is a good question.

The ACPO report has already had some impact. During the last three years a number of colleges and polytechnics have set in motion part-time, in-service HNC and HND courses for the police. The next step is for these institutions to extend their programmes and offer part-time degrees for serving police officers, either by building on the back of an already existing HND (the most likely strategy) or by developing a quite separate part-time degree course. As a consequence the role of the Council for National Academic Awards, which validates such degrees, will be crucial. Indeed, at least two institutions have already submitted degree courses for

Kent State 1970: lack of "appreciation of the socio-economic factors which may dispose people to behave in a manner inimical to the legislation of the day?"



## Look before you LEEP

CNA approval (though without success as yet). The CNA's response has been to convene a national conference on police education at the end of this year; their caution is perhaps understandable.

In the United States the 1967 President's Commission on Law Enforcement and the Administration of Justice stated that: "The ultimate aim of all police departments should be that all personnel with general educational power have baccalaureate degrees." On that side of the Atlantic the notion of Starksy BA and Hutch BA has a less eccentric ring to it than it has in British context.

The commission was set up in 1965 by Lyndon Johnson as a response to growing demands from a strong "law and order" lobby within the federal government and among sections of the general public. The official crime rate had doubled since 1940, and fears were growing that the streets were no longer safe. The prisons were filled to bursting point, and their avowed aim of rehabilitation was clearly a sham.

Two years later, when the commission published its report, rioting, especially in the ghettos, had increased dramatically as a popular activity; and by the late 1960s rioting and street crime had fused together in the public and governmental imagination into

one generalized threat. Also by 1968 growing numbers of American citizens were protesting at their country's involvement in the Vietnam war, and university campuses were becoming more and more politicized. Importantly, and for the first time in that country's history, middle class parents watched television pictures of police officers and national guardsmen beating up, or even shooting their children on the streets and campuses. The 1968 report of the National Advisory Commission on Civil Disorders, criticized the police for their role in the precipitation of ghetto riots.

It was in this climate that the cumbersome titled Omnibus Crime Control and Safe Streets Act became law in the middle of 1968. The act instituted a new federal agency given the name of the Law Enforcement Assistance Administration whose essential task was to give funds to states in order that they could improve their criminal justice systems. As far as police education was concerned, the most important development by the LEAA was the setting up of LEEP: the Law Enforcement Education Program. LEEP provided a massive infusion of federal funds into colleges and universities in support of criminal justice courses.

In the United States higher education

(i.e. post-high school) takes place in two-year colleges and four-year universities, the former offering associate degrees and the latter bachelor degrees and postgraduate qualifications. Police education is offered by both types of establishment, and police officers, or intending officers, will take a degree in criminal justice, a broadly based course covering what can be a vast range of subjects and areas. A qualification in criminal justice prepares students for a surprisingly wide range of jobs in various types of criminal justice agency, from police officer to consumer protection specialist. Today virtually all criminal justice students on full-time day courses are pre-service students, and even in the part-time evening classes only a minority are now police officers.

Social scientists in America have used three basic models to describe the possible orientations of courses in the field of criminal justice: technical/vocational, professional/managerial, and social/humanistic.

With the first, stress is placed on the "how" of criminal justice, on practical training-type programmes very much tied to learning the technical skills deemed necessary to carry out a particular job. In the two-year college prior to the LEEP initiative this tended to be the model employed.

The second model involves a stress on organizational techniques and administrative practices. Although it is less vocational in orientation than the first, it still operates around the belief that there are certain administrative skills which can be learnt then applied.

The third model involves an educational programme which aims at a broadly based grounding in the social sciences and the liberal arts. In the four-year colleges this has always been the dominant model, and during the 1970s two-year colleges moved in this direction. Studies indicate that this is the model strongly favoured by teaching staff.

Clearly there is some tension between each of these models. The call for a liberal arts ethos in police education in America arose in a period of political unrest and conflict. Education would make the police more aware, more sensitive, less authoritarian and more democratic. When this political conflict declined, while street crime continued to rise, pressure developed to professionalize rather than democratize the police. The social and political conditions in America during the 1960s provided the context in which college criminal justice programmes were to flourish, and some parallels can be drawn between then in the United States and now in Britain. There are, however, a number of significant differences.

Crucially we are in the middle of a severe economic recession, and have a government that is hardly committed to an expansion of public education. On the other hand, there is for a Conservative administration an interesting tension between checking public expenditure and spending public money on "law and order". It all depends on what is perceived to be the aim of police education. One wonders just how sympathetic the present government would be to the conclusions reached by the latest official assessment of criminal justice education in America - the 1978 National Advisory Commission on Higher Education for Police Officers. The commission said that education should play a part in changing police organization and police behaviour: "What is not required for educating the police institution for change is to train individual students in performing basic police skills or to increase the system efficiency of policing as an institution. These narrow objectives may only reinforce the most parochial and conservative tendencies of the police."

At its centre the debate about the nature of police education is really a debate about the nature of policing.

The author teaches at New College, Durham.

Gurth Higgin offers some thoughts on present policy thinking in the universities

## Unsteady state theory

Fifteen years ago universities lived in a different world. The numbers of undergraduates, our bread and butter, had been steadily rising as long as anyone could remember, as also the supply of overseas students. Expansion and the resources to finance it always seemed to be available. Money came to us on a gently rolling quinquennial budget that always went well. Tenure was almost automatically granted and meant what it said, that we had security for life. Universities had status, acceptability and power. The university lobby irrespective of the nature of the government, could count upon a hearing and, usually, acceptance of its requests. Society accepted the universities as a good thing and with the exception of a few critics, their position was never challenged. The polys and other institutions validated by the Council for National Academic Awards were developing, but there was plenty of gravy for everybody and the universities merely kept aloof. We had vocational and practical courses, but those who wished to continue with a life of scholarship, believing in the pursuit of knowledge and learning for its own sake, undisturbed. We were surrounded by a full employment economy with continual rising affluence and, in spite of the fluctuation of trends, patterns of work, leisure, and education, were seen as settled, and accepted as continuing so into the future.

Not only is none of these things now true, but their present, and certainly their future, changes are unpredictable. Student numbers are falling, the patterns of their interests and motivations are changing and there is an unpleasant scramble for declining numbers of overseas students to keep the jam on our bread. Our financial position has for some time been precarious and unknown since the smooth quinquennial budgeting became an annual lottery. The universities have been hit by universal cuts, the rationale for which is not clear to anybody. What their financial position in the future may be is unknown, with possibilities of drastic changes in the costly student grant system and the possible opening of our boundaries to market forces.

Tenure is seriously questioned and in the opinion of many, will not stand up against economic pressures. The old values of scholarship and knowledge for its own sake no longer gain easy support in the face of pressures for vocational practicality. We are becoming aware of the low cost competition of the CNA institutions. Around us is mass unemployment which, in spite of politicians' promises, nobody seriously believes is going to disappear. There is also the possibility of the structural unemployment that application of new high technologies may bring, with the already occurring out-dating of areas of skill and knowledge and of those who carry these. There are pressures for changes in the pattern of work - part-time work, shared jobs etc. This implies changing patterns of work and leisure with the implications this may have for the supply and variety of educational needs in the future. The pattern of the distribution of educational funding is changing with the universities realizing that they are now seen as just another demanding voice in a queue, without their old automatic right to be first to the door and the most welcome.

stable, placid environment but in a highly turbulent one. In a placid environment the nature and behaviour of external bodies and forces can be sufficiently known and predictable to allow forecasting and planning. In a turbulent environment these factors are no longer predictable, either in

behaviour. Trivialization consists of the denial of any significant change, the tendency to excuse it away and the unwillingness to consider alternatives to traditional behaviour. It also produces a high level of intolerance of those who insist that things are not what they were or are in need of change. Segmentation is the tendency to concentrate on sub-goals about which there is little dispute, but without taking account of the implications of this activity on other equally valued goals, and all without any questioning as to whether the traditional belief about the institution's overall objectives is itself in question. The first reaction of the university system to its turbulent situation was to pursue the protection of research. It did this without consideration of any other goals or overall objectives that may be appropriate for universities in their changed environment. It is understandable that this was the first system-wide reaction. Although it is very doubtful whether for the members of the general public, or even the DES, research is the most valued aspect of the university system; it certainly is far those within it. It now looks as if our attention is to be drawn from research and into continuing education, but this stimulation has not come to us as part of an overall objective but purely as encouragement to pursue it as another sub-goal. Another characteristic of segmentation is the expectation of being able to use control systems, particularly financial control systems, as a means of securing fixed objectives for sub-goals regardless of the wider effects of such narrow applications.

In our age, as never before, truth implies the courage to face chaos

Richard Neumann

their relationship to each other or in their relationship to any organization. Consider the near home example of the relationship between a university, the Department of Education and Science, the University Grants Committee, the research councils and the educational "free market" (which is already being exploited profitably by several universities). No university administrator can know with the certainty forward planning requires what the pattern of relationship between this set of institutions will be in the future, or indeed the relationship between any two of them. This is turbulence, a situation in which the persistence in old patterns of thought and techniques of reaction will probably prove to be maladaptive.

I am here, of course, following the Emery/Trist model. In that model the main forms of maladaptive response by an organization (finding itself unprepared in a turbulent environment are trivialization, segmentation, and disassociation. The university system seems to be indulging in all these forms of

The third instance of maladaptive response to turbulence, disassociation, is in part a reaction to the other two. It is the result of the conflict experienced by groups or individuals when, on the one hand, they have a sense that the environment has changed but on the other hand that the organization they are in and its leadership is floundering through a series of maladaptive reactions, lacking any sense of purpose or direction. It produces a sense of cynicism and anomie, and a withdrawal from all commitments and responsibilities except those needed for personal survival.

The first requirement for more adaptive reactions for an organization in a turbulent environment is a clear recognition and acceptance of its changed situation (here be demons - the world turned upside down, confusion, panic, despair). The second requirement is the recognition that its inherited set of values and objectives is the result of interaction between its characteristics and desires in the past with a then placid environment. These will probably not be useful guides to reaction, or even realistic in the present turbulent environment. This could well mean that the organization may need to re-think its whole identity.

The process it needs to go into is what is referred to as ideal seeking activity. This is not using the concept itself with any connotation of mystique or holy grail, it simply means that the organization needs to get its ideas realistically sorted out as to what it is, where it wants to go and to test continually its chances of being able to go there.

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The early university lectures in chemistry were given as service courses in the training of medical practitioners, and it is appropriate to begin in Scotland with the foundation of the University of Edinburgh medical faculty in 1726. Four founder professors were appointed for life—but without salary! Their income came from fee-paying students who included interested laymen as well as those working for medical degrees. Chemistry lectures on pharmaceutical preparations were offered but other related topics such as fermentation and essential oils were also discussed. The business acumen of the founder professors was impressive as the course fee of three guineas per session included opportunities for the students to observe the professors preparing drugs which were subsequently sold to local apothecaries.

This immediate need to be sensitive to the requirements of their students, from whom they derived a substantial income, and to be in some contact with the working life of the city, gave a flexibility of approach to teaching which contrasted sharply with that at Oxford and Cambridge. The richly endowed English universities were mainly preoccupied with the training of clergymen and not exposed to any pressures conducive to change.

Chemistry continued to be taught by medical men as an important though minority subject, but in 1747 William Cullen was made lecturer in chemistry at the University of Glasgow. This appears to be the first independent appointment in the subject in the UK. Cullen was also the first teacher in Scotland to see chemistry not merely as a branch of pharmacy but a subject in its own right with applications in fields of technical interest such as textile bleaching, soap making and fermentation. He went on to become a professor at Edinburgh.

Joseph Black attended Cullen's lectures and worked as his laboratory assistant. He was undoubtedly influenced by the only research paper in chemistry published (1756) entitled *Of the Cold Produced by Evaporating Fluids and Other Means of Producing Cold*. This was a seminal piece of work since Black went on to discover the phenomenon of latent heat.

In the eighteenth century only those men willing to accept the 39 Articles of the Anglican Faith could graduate from the English universities or teach in schools. The non-conformists were therefore driven to create the Dissenting Academies primarily to train their preachers and ministers. One of the greatest English chemists of the century, Joseph Priestley, received a Calvinist upbringing and was trained for the ministry at the Dissenting Academy at Daventry. There his independent and wide ranging mind was stimulated and the foundations laid for his subsequent polymath career.

The Manchester Dissenting Academy was established in 1786 with a course of five years duration for students training for the ministry and a shorter course for those intending to enter the professions. The curriculum included classical languages and subjects such as religious instruction, history, philosophy appropriate to ministers of religion. In addition, John Dalton, who was professor of mathematics and experimental philosophy, taught chemistry as did Thomas Henry whose courses included *Chemistry with a Reference to Arts and Manufactures*.

These academists were a radical development in education away from the Oxbridge tradition where classical languages, and little else, were regarded as suitable training for Anglican clergymen and sufficient for a gentleman's mind. The movement was towards a more liberal education to include modern as well as classical languages, science and other contemporary subjects. Support for these changes came from a number of sources including influential provincial associations such as the Literary and Philosophical Society in Manchester and the Lunar Society in Birmingham. How far this movement might have developed we cannot know since it was arrested by an epoch-making event in another country, the French Revolution of 1789.

To sweep away the old regime of King and Church, the French revolutionaries saw the sciences as the key to educational reform. One effect was the establishment of schools equipped with laboratories where there would be less emphasis on the classics and more on science. This development proved difficult to sustain because of the lack of suitable teachers and, especially, of

Compared with those countries who are our industrial competitors we have consistently produced fewer science graduates. Given the Government's policy of eroding this slim foundation of our scientific future, it has never been more important to ensure that the science graduates we do produce are as well equipped as possible. Although the number of UK chemistry graduates having fallen from a peak of 2,650 in 1969 appeared, until the most recent cuts, to be settling at around 2,000 per annum, these figures refer to a period in which both the number of school leavers with A level chemistry and the university population in general has been expanding. R. C. POLLER looks at how increasing numbers of qualified school leavers have been rejecting tertiary education in chemistry and at the other criticisms which have been levelled at our courses.

## Finding a formula for British success

adequate funds. In 1794 the École Polytechnique was established to provide basic training for engineers but also to encourage study of the sciences, so that mathematics, physics and chemistry were taught.

In Britain the liberal democrats and dissenters, who were the educational reformers, generally supported the French revolution. As the Establishment in Britain saw the threat to their system from across the Channel the reformers were branded as traitors and France and Britain were soon at war. The homes and chapels of the dissenters were attacked by mobs and Priestley sought refuge in the United States after his home and scientific library were destroyed. Thus a powerful movement for reform in higher education was, for a time, halted.

In 1808 John Playfair, professor of mathematics at the University of Edinburgh, spearheaded an attack on the universities of Oxford and Cambridge for poor teaching and failure to encourage the sciences. This attack was supported by other leading educationalists and eventually, Edward Coplestone of Oriel College, Oxford published an article entitled *Reply to the Calumnies of the Edinburgh Review Regarding Oxford*.

He maintained that sciences were taught at Oxford (though not required for a degree nor examined) and his long justification of the *status quo* included the following: "Never let us believe that the improvement of chemical arts, however much it may tend to the augmentation of national riches, can supersede the use of that intellectual laboratory where the sages of Greece explored the hidden elements of which man consists".

These attacks had little impact on the two English universities but elsewhere there was a new movement towards a broadening of education with respect to both availability and content. A need was perceived for a more utilitarian system of higher education to deepen his understanding of the changing world about him, including the rapidly developing new industries. Among the many influential figures seeking to deflect higher education away from its narrow preoccupation with the classics, a broader curriculum towards a 'broader' curriculum which would include the sciences was Jeremy Bentham. He and his supporters

founded "the University of London" in 1828.

University College, as it was subsequently named, was open to all men regardless of religious beliefs. The curriculum included "experimental science", ie chemistry, physics and botany as well as geography, economics and other modern subjects and also classics and mathematics. The prospect of university education being made available to free-thinkers, dissenters, Roman Catholics and Jews so horrified the Anglican establishment that they attempted to remove the offending institution. When this failed, they founded a rival establishment—King's College. Despite the religious and conservative principles of the founders of King's College, where all staff had to be practising members of the Church of England no restriction was placed on the subjects. Also the range of subjects taught at KC was as broad and liberal as that at UC.

The first degrees offered by the University of London were in arts, laws, and medicine. First MB students were required to pass an examination in chemistry, emphasizing the continuing service role of the subject. However, the BA could be taken in mathematics or natural philosophy and examined for honours in various subjects including chemistry.

The early courses laid considerable emphasis on applied chemistry as can be seen from the quotation from the UC Calendar for 1833/34: "...it will be a prominent object of the (chemistry) course to develop the principles of the important chemical manufactures such as glass making, bleaching, dyeing, calico printing, working of metals, gas making, brewing, distilling and the preparation of various chemical products used in pharmacy". There was also an evening practical course of 15 Practical Engaged in Manufactures".

At the end of the 1830s the authorities of the University of London, after many discussions with prominent educationalists and scientists, introduced the Bachelor of Science degree. There was controversy between the advocates of a specialized professional BSc and those who favoured a broader more liberal science degree. The latter triumphed and candidates for the first BSc had to show competence in mathematics, physics, chemistry, in biological sciences, and logic with ethics.

Prince Albert, with his German training, saw the need to improve scientific education in Britain and his influential position at Queen's Consort enabled him to act. He consulted Leibig in 1842 about establishing a British College of Chemistry. Leibig, at the University of Giessen, was stimulating great interest in chemistry both as a subject in its own right and for its useful applications. His teaching methods, with their emphasis on practical work and careful analysis, were much admired.

In 1845 the Royal College of Chemistry was established in London and was modelled on the Giessen department with Leibig's ex-pupil A. W. Hofmann as its first professor. The college was privately funded and aimed to promote the science of chemistry and its application to agriculture, arts, manufactures and medicine. Degrees could not be awarded but after the successful completion of the analytical course, and a piece of research deemed worthy of publication, a Testimonial of Proficiency was given.

In its brief independent existence of eight years the college did excellent work and numbered among its students many who were to become famous chemists. However, the money subscribed was insufficient for successful launching of the enterprise and when it became clear that there were no ultra-fast profits to be made, interest among the financial backers quickly waned. It going; he did not draw his full salary, and finally gave up the house which had been assigned to him. But the financial problems were too great and in 1853 the Royal College of Chemistry merged with the School of Mines.

The independent discovery of the dye mauve, the perspicacious assessment and rapid exploitation of the

commercial possibilities thereof by Hofmann's 18-year-old assistant W. H. Perkin, is well documented. In the present context it is interesting to note that Hofmann, despite the distinctly practical and applied nature of the chemistry he taught, tried to dissuade Perkin from throwing up his studies and going into business as a dyestuff manufacturer.

During the nineteenth century many other colleges of higher education were established which offered science as an important part of the curriculum. These included the Royal College of Science and what are now the universities of Birmingham, Bristol, Durham, Leeds, Liverpool, Manchester, Nottingham, Sheffield and Southampton. However, it was becoming clear that the provision of scientific and technological education in Germany and France far exceeded anything that was available in Britain (by 1900 approximately 17,000, England and Wales 3,000).

The disquiet over this situation was considerable and led to the establishment in 1872 of the Royal Commission on Scientific Instruction and the Advancement of Science chaired by the Duke of Devonshire. Enormous amounts of evidence were taken and at least eight reports issued. Among the many recommendations made was one that university scientific education should not be specialized. Most of the proposals were ignored but a few changes resulted including improvements to the South Kensington Colleges and an annual state grant of £4,000 was made for the endowment of research. Generally, however, the complacent view prevailed that Britain had led the world in engineering without the benefit of formal training and, despite much evidence to the contrary, would do so in science.

Among the reformers who continued to press for more science in university and college curricula there was some disagreement as to content. The majority favoured a broad liberal scientific education rather than a narrow specialized training. But then a shift began from the broad to the narrow which seemed quite spontaneous. Those who had inaugurated the BSc degree of London University had taken some pains to ensure that the graduate would be broadly educated in science. Following strong advocacy from many distinguished witnesses, the Devonshire Commission wholeheartedly supported this view. Nevertheless, in 1876 the university changed the regulations so as to make the BSc degree much more specialized. Earlier requirements that candidates should show evidence of general culture, as well as a knowledge of both biological and physical sciences were swept aside. Candidates would select three science subjects for the final or Part II examination and could then take an honours paper in a single subject. It is clear that there was no pressure from industry for more specialization; the German chemical industry might welcome highly

trained chemists, not so their British counterparts.

There is evidence that trends elsewhere in education were towards narrowness, probably encouraged by increasing use of written examination. It is difficult to argue with the view that increasing specialization in scientific education arose not from pressures from scientists or potential employers, but simply because examiners and examinees found it more convenient.

From 1876 onwards the increasing specialization of the candidates is shown by the changing examination requirements. At first any three science subjects could be offered at the part II or final examination for the pass degree followed by an honours paper in a single subject. In 1910 the pass degree students were segregated from those reading for honours. The first group took the final examination in three subjects as before, but the honours students were examined in only two subjects, one at principal and the other at subsidiary level.

In the early years of this century there was little improvement in the output of chemistry graduates from Britain, while Germany continued to increase its enormous lead both in technology and in technological education. This country paid dearly in 1914 for its neglect of chemistry but between the two wars there was a slow and modest improvement in the provision for chemical education. It was this period, when small numbers of chemists graduated and all could expect to practise their subject, that produced the men who would begin to build up the present chemistry department.

Since 1945 various governments have expanded higher education with particular emphasis on scientific subjects. The demand for specialist graduates in chemistry increased for almost twenty-five years, but then, as already noted, it waned and the maximum output occurred in 1969.

There has been a progressive rejection of the utilitarian and applied aspects of the subject. The full title of the body responsible for chemistry in the University of London—"The Board of Studies in Chemistry and Chemical Industries"—reminds us that applied studies were once important, but the last three words have little significance today. Paradoxically university teachers advance in their profession not by their ability to teach, but by their success in research which, in Britain, means pure research. Inevitably the degree is oriented towards producing research workers in pure chemistry, even though the majority of graduates lack both the desire and opportunity to pursue this path.

Much more disturbing is that all pretensions to the idea that the graduate should be well educated have been abandoned. Breadth of learning is not expected of today's chemistry graduate: specialization begins in school and is welcomed and encouraged at university.

The specialized single honours degree of the type introduced at the beginning of the century remains as the centre of most chemistry departments. This specialized degree course is of excellent scientific quality and is perfectly suitable for the able dedicated student who will still be successful in obtaining one of the rapidly diminishing number of research posts and who will provide the necessary educational breadth for himself.

The majority of our undergraduates are able and aware young people who have already demonstrated that they have the intelligence to cope with, and benefit from, a course in higher education, but whose commitment to chemistry is limited. They have come to university with the still substantially correct belief that a degree will enable them to get a better job.

As this country knows to its cost, technological riches do not automatically accrue to nations with distinguished attainments in pure science. We should surely be aiming at increasing the undergraduate population of our chemistry departments and could do this by welcoming the idea of the science generalist and, in addition, to traditional specialist degrees offer broader science courses.

The aim would be to produce increasing numbers of truly educated graduates with informed but flexible minds, equipped for the challenging and changing careers that will be available in the years ahead.

The author teaches in the department of chemistry at Queen Elizabeth College, London.

Alison Calanda examines the issues raised in the Royal Society of Chemistry's survey of the university cuts

## Chain reaction of cuts leads to testing times

Many observers thought that chemistry would fare better than other subjects when the Government announced cuts in university finance. Now 18 months further on, with the forced contraction of the system well under way, it is an opportune time to consider what the real effects on chemistry teaching and research have been. Has the streamlining been successful in producing better results, more cost-effective solutions, or has it merely hampered the development of new technologies and vital new areas of chemical research?

This and other pertinent questions are answered in a report prepared by the Committee of Heads of University Chemistry Departments (CHUCD) published by the Royal Society of Chemistry.

Based on an investigation and survey of UK university chemistry departments, of which 73 per cent replied, the report paints a disquieting picture of the worsening situation over the past decade and predicts a gloomy future for the teaching and study of chemistry as a subject in our universities.

Staffing levels form a major part of the problem and the latest round of cuts in university finance has merely exacerbated an already disturbing decline. Since 1973 there has been a reduction in most categories of staff—in both the academic, technical and clerical fields (Tables 1 and 2).

However, an even more serious aspect to the problem emerges in the age distribution of teaching staff. The report shows that this has changed considerably since 1973 (Table 3), with the age peak shifting over the past 10 years from the 35-39 age group in 1973/74 to the 45-49 age group in 1981/82. Thus the increase of staff at professorial and senior lecturer level (Table 1) must be set against the substantial decrease in the number of young teaching staff. The latter has been caused largely by the restricted recruitment programme resulting from the cuts.

As a result, a number of university chemistry departments report no new tenured academic staff for the past five or more years! This has happened in a discipline where it is arguable that the exciting new ideas so necessary for the continued health of research are generated in greater proportion by the younger age groups.

The report also points out that as far as age distribution patterns are concerned, the Government's three-year programme of restrictions has severely aggravated a situation which would, in any case, have arisen. Even before the Government introduced financial restrictions, the vast increases in staff recruitment which took place after the Robbins report and the subsequent promotion of that 1960s intake of staff led to concern about the absence of junior lecturers.

A steady programme of recruitment would therefore seem to be the optimum solution, as sporadic and enthusiastic recruitment bursts pose problems for later years. This, of course, throws the recently advertised "new blood" posts into a new light. Although welcoming them as a step in the right direction the CHUCD stresses that in order to ensure a real improvement in the situation, the scheme would have to remain in operation over a prolonged period.

Research therefore suffers from a lack of young recruits, but teaching too has suffered. Set against the background of slowly increasing numbers of undergraduate students in chemistry, the overall drop in staff levels has meant a significant increase in the student staff ratio from under 7:1 to over 9:1. The more staff hours allocated to



Students at a chemistry lecture in Paris circa 1885.

teaching, the less is spent on research and development and vice versa.

A related problem is the career structure of the university lecturer. There is little doubt that in the past many postgraduate students undertook postdoctoral research as a natural step to a university lectureship. Nowadays, even the most able postdoctoral fellow has only an outside chance of a permanent university post. The incentive to apply for postdoctoral work even when it is available is therefore low.

Indeed, says the report, there are now many older fellows with several years of postdoctoral experience trapped in academic limbo. There are very few permanent academic posts to apply for, and industry regards these particular candidates as either overqualified or too old or too expensive. Their increasing numbers can hamper research. A little further up the career ladder lecturers who merit promotion to readership cannot move up.

### Technical revolution is out of reach

The report also puts the reduction in support staff high on the list of problems. This has been similar to cuts in the number of academic staff. In some areas where developments in technology have been particularly rapid, university departments have found that they could not compete favourably with industry and commerce on technical salary scales for certain specialized staff, for instance in electronics. To "remedy" the situation fewer staff were employed.

The technical revolution which has taken place in industry and commerce over the past 10 years would seem to remain sadly out of reach to the average university chemistry department. Indeed the statistics in Table 2 do little to reflect the advances, as they show a reduction in technical staff from 1,239 in 1973 to 1,094 in 1982. Little wonder that many departments are facing acute problems in servicing, operating and maintenance costs of equipment.

The reduction in technical staff is coupled with a reduction in purchasing power of the equipment grant, says the report. Ten years ago in 1973/74, the University Grants Committee grant would have purchased 17 per cent more and was adequate to maintain standards. But it was savagely cut the following year to less than half in terms of purchasing power, and remained at this lower level for the next five years.

Increases in 1979-80 and 1980-81 did little to balance the accumulated deficit from the years of underfunding, and many departments are now finding that more and more of their annual equipment grant is required just to replace standard apparatus. Next to nothing is left for the purchase of new instruments. The problem is compounded by the reduction in purchasing power of the departmental grants to chemistry departments (Table 4). From 1978/79 to 1981/82 the reduction is well over 20 per cent and this, according to the report, is a minimum figure.

In spite of all this, departments have had to cope with the development of new courses to keep pace with changes in subjects and the demands of industry, increasing student numbers and ever-increasing international pressure

for research.

The way research is organized in the UK means that a high proportion of fundamental chemical research is carried out in universities. With much unreliable and out-of-date equipment, difficulties in the purchase of new instruments and cutbacks in library purchases of primary research journals, how are we in the UK to compete internationally in research? How are we to train our undergraduates in the use of new sophisticated and unavoidably expensive equipment which in turn requires high levels of expertise in the technical staff?

The report makes it clear that almost all the changes imposed on chemistry departments have made the pursuit of excellence in both teaching and research more difficult. To their credit, chemistry department staff have done much to achieve more with less resources. They have obtained funding from new sources and shouldered new teaching loads and additional clerical work. But starvation of funds has produced inefficiencies. The universities have an immediate and continuing commitment to their undergraduate students. Research has therefore suffered and the cutbacks have also had a boomerang effect on teaching.

### Research and teaching will suffer

What then of the future? The report concludes that in the long term the effects of these measures will be devastating. Early retirements projected for the next two years will lead to an additional reduction in academic staff of 5-10 per cent by next year. The projected drop is most likely to be in the 35+ age group, where numbers are already below the steady state values. The age distribution will thus be even more skewed. In the absence of any remedial action the present age peak will be replaced by a similar but younger one. Research and teaching will once again suffer.

The message is clear. A planned intake of new young staff is required, the departmental grant must be maintained in real terms and the equipment grant increased. Better methods of equipment sharing must be evolved between departments and universities. This will require a change in attitudes from administrators, some academics and granting bodies; magnanimity is a virtue more widespread in times of plenty.

As Professor Monty Frey, chairman of the CHUCD said: "Chemistry is central to science. The future success of teaching and research in chemistry in our universities depends largely on the present decline being halted and lost ground regained."

The author is press officer at the Royal Society of Chemistry.

Table 2. Technical and clerical staff.

	Technical staff (37 August 1982)	Clerical staff (38 August 1982)
1973	1239	271
1974	1223	259
1975	1176	258
1976	1168	254
1977	1137	254
1978	1120	248
1979	1107	249
1980	1084	246
1981	1060	247

Table 1. UGC Supported staff with tenure (42 departments supplied data).

	Lecturers	Reader-senior lecturers	Professors	Total
October				
1973	613	338	143	1094
1974	647	372	143	1082
1975	637	361	142	1080
1976	627	360	148	1056
1977	608	351	148	1047
1978	498	408	151	1047
1979	489	421	153	1033
1980	448	417	157	1020
1981	423	421	157	1001
1982	406	411	144	961

Table 3. Age distribution of academic staff in chemistry (UGC figures).

Year*	30	30-34	35-39	40-44	45-49	50-54	55-59	60+	Total
1977-78	70	178	335	373	280	207	107	70	1820
1979-80	77	123	253	377	325	228	138	79	1803
1980-81	78	108	219	358	335	247	154	86	1885
1981-82	69	97	191	335	362	254	173	85	1654
Steady State	117	171	202	216	228	222	207	191	1554

\* The above data for chemistry staff UGC funded may only be accurate to 2 in each five year band as they are calculated from figures of the total. Note that age peak shifts to 45-49 group in 1981-82. Highest age peak in any science based discipline with more than 100 members with the exception of metallurgy (50-54). Most science based disciplines peak at 40-44 or 35-39.







## BOOKS

## Odes to Augustus

The Augustan Idea in English Literature  
by Howard Erskine-Hill  
Edward Arnold, £33.50  
ISBN 0 7131 6373 9

There is, as far as I can see, no sustaining myth to support political and cultural life in the England of the eighteenth century. Whiggish-Fabian optimism already seems a quaint historical curiosity and our current nostalgia for a past compounded of Palmerston and Samuel Smiles offers a cold and unsympathetic idea to live by. Confronted by such vacuity one turns with relief to *The Augustan Idea in English Literature* which deals with a myth that informed English cultural life for two hundred years, had its roots deep in the European and national past and was capable at least of some resonance.

Augustus Caesar's career was a paradox. He seized power ruthlessly at an early age, was merciless in establishing his position (conquering at the death of Cicero and carrying out mass executions), yet he strove successfully for peace in the Roman world, performed notable acts of clemency, was an enlightened patron of great poets and a major builder and renovator of Rome. Moreover, he presided over the greatest period of Roman history, a very important point in the birth of Christ adumbrated in his fall. His career could therefore be seen as exemplary but in varied ways: a pattern of the imperial ideal in Virgil and Horace; a negative instance of the subversion of republican liberty in Tacitus; a crucial point of reference for the providential mapping of history in Eusebius and other Christian historians.

It is this multiplicity of interpretation that has recently led critics of eighteenth-century literature into controversy over the proper interpretation of the term "Augustan". Howard Weinbrot arguing strenuously in *Augustus Caesar in Augustan England* (1978) that the so-called Augustan period itself was increasingly aware of the negative aspects of Octavian's reign and increasingly inclined to question the moral basis of the Horatian art that he fostered. Dr Erskine-Hill's formidably erudite study examines this problem in the context of a development of responses to Augustus that stretches back to the Old English period (the providential view) and includes, for example, interestingly contrary views of the emperor in the Towneley and Chester cycles of miracle plays.

But the application of the idea of Augustus to English life begins in the last years of Elizabeth's reign and as a political ideal it was extensively evoked in the coronation pageants of James I where Augustus motifs promoted the idea of national unity, peace and prosperity. Joseph Hall wrote in 1613 that James "like another Augustus" before the second coming of Christ, hath becalmed the world and shut the iron gates of war", and attempts of this kind to use the parallel to support a traditional reading of contemporary history show the scope and power of the analogue. From the beginning of the seventeenth century onwards Augustus became a point of reference at the beginning of a new reign, the exemplum of the good prince, moderate, mature in judgement, the restorer, a restorer in judgement. At the same time the cultural significance of Augustus's reign was emphasized. Jonson's *The Poetaster*, for example, identified the rule of Augustus with a flourishing of the arts and with the poetic achievement that immortalized his reign.

There is an inherent tension, however, between the comprehensiveness of the ideal that Augustus represents and the inevitable limits of contemporary life at any time, and this tension is always present in Augustan satire, a term which may be thought, in the light of this discussion, to extend from Donne to Pope. The Augustan satire, model is Horace and the ideal there is one of urbane and witty, humane, tolerant yet flexible and poised. From Donne to Pope, Horace is the model

frequently imitated of Roman satirists, but poets often found difficulty in accommodating the strength of their moral feeling within the Horatian mode. In a fine discussion of Donne's *Satire IV* Dr Erskine-Hill shows, first how Donne is influenced by Horace *Satire I.1*, and then how the poet's encounter with the courtier provokes "exuberant comedy in dialogue with fear" and how a lively sense of danger is used to give the satirist a lonely, heroic moral stance which transcends anything to be found in the model. The tone in fact is more Juvenalian than Horatian and anticipates Dryden's praise of the "tragical satire" of Juvenal in "Discourse Concerning Satire". Juvenalian impetuosity, with its mixture of disgust and comic bravura, is a response to an altogether more corrupt

and dangerous world than the Augustan and it might be noted that Juvenal's moral rigour had from early times made him acceptable to Christian sensibilities. After Donne than Juvenalian strain is important in Oldham and Rochester (rather scantly treated here) but above all in Pope whose final view of satiric ridicule as a "sacred weapon left for truth's defence" is majestic in its implications for the poet's role. Dr Erskine-Hill traces the development of this element in Pope with great sensitivity to textual detail, though occasionally if anything understating his case. *Sober Advice from Horace*, for example, certainly pre-figures the "comedy of sexual appetite" but the sense of "man corrupt, perverse in all his ways" surely gives the comedy a threatening edge.

Yet however strenuous the poet's role becomes, this study shows convincingly that the emphasis on corruption and on the satirist's lonely heroic stance never completely subverts the appeal to a positive Augustan ideal. A Tacitean view had obvious attractions for those who wished to emphasize the degeneration of courts but the cultural ideal of a generous interplay between government and the arts remained dominant for as long as a broadly social and classical idea of the artist's function held sway.

What we do find is that towards the end of this period references to Augustan Rome take on an elegiac note. Travellers on the grand tour had always been aware that they could see only fragmentary remains of Rome's achievement, and the cyclical concep-

tion of history inherent in the Augustan too would fall into decay and the centre of civilization move elsewhere. "At last", Horace Walpole wrote in 1774, "some curious traveller from Lima will visit England, and give a description of the ruins of St Paul's, like the editions of Balbec and Palmyra". The whittling of time levels all ambition.

*The Augustan Idea in English Literature* is a stimulating examination of this wide-ranging theme which extends and enriches our understanding of what is likely to be seen increasingly as a key term in English literary history.

John Chalker

John Chalker is professor of English at Westfield College, London.

## Busy haunting geniuses

John Forster: a literary life  
by James A. Davies  
Leicester University Press, £25.00  
ISBN 0 7185 1164 6

Everybody with an interest in nineteenth-century English literature has come across John Forster in more than one context. And it is likely that he will not have made an altogether favourable impression.

Much in James Davies's wholly admirable study will confirm one's unease about a figure who often seems to have been a parody of Victorian bourgeois respectability. Here are the cold baths, the stiffly unrevealing photographs, the domestic domineering, the obsession with social rank (arising from acute anxiety), the chauvinism, the proliferation of charitable enterprises, the easy chairs and thick carpets, the forcible sublimation of genius, to cultivate "a decorous Romanticism, expressive of social aspirations", in danger of promoting a literature risking nothing, wholly acceptable, wholly respectable. Here is Popsnap.

Dr Davies denies none of this, but he shows that Dickens for one knew that Popsnap was based on only part of Forster - though that was undeniably an important part, which sometimes irritated the novelist almost beyond endurance. A cunningly structured and engagingly written series of essays brings out both the common elements and the unique features in Forster's relationships with the major literary figures of his time. For most of them he acted as a literary agent with an acute business sense and an unrivalled knowledge of the publishing world, and in each case he promoted devotedly (though hardly without self-interest) his ideal of the dignity of the literary profession, the public acknowledgment of the commercial worth of unacknowledged geniuses.

To Leigh Hunt Forster gave a measure of practical and literary discipline, and from him and Lamb he inherited such Romantic touchstones as organic unity and the importance of the imagination. Lamb further provided him with "a permanent Romantic image of the literary man" and a grounding in Romantic methods of Shakespearean criticism. For Bulwer-Lytton he was an acute critic, before publication and a friendly but not undiscriminating reviewer afterwards. He sought out for the actor Macready plays of "suitably forceful gravity", reviewed his performances actively, and supported him in his reformation of theatrical morals. Browning's poetic genius developed beyond his understanding, but the two men collaborated on Forster's life of Stratford. His editorial labours established Landor's stature as a lyric poet and inspired some of his more erratic inspirations. His fine critical sense had a profound, though often not easily discernible, effect on Dickens's work. And his designation to Carlyle showed itself first in unflinching agent's work, and then in a tendency to copy a master whom few would wish to see copied.

Dr Davies has done more than merely in recent years to bring Forster's merits and importance into attention. His knowledge of his subject is extensive, and this book is splendidly



John Forster in 1840, aged 28, a sketch by Daniel MacLise.

thorough in documentation: printed material is succinctly digested and scattered manuscript sources are raked for important new details. Even Dr Davies has to admit that one cannot really know Forster intimately as a person, largely because of the destruction of most of his papers by his literary executor; but we know enough to trace the emotional sources of his life in his writing with awe and energy (his worst sin was to fall asleep during Macready's rendering of Bulwer's *Richard III*) which packed the work of several healthy lifetimes into one invalid's existence. Beside his work as literary agent par excellence, an amateur actor, an eagerly industrious but unsatisfactory historian, and a literary biographer whose final life of Dickens is here convincingly shown to have made a real effort to cope with the distracting vagaries of genius.

The *Newcastle Weekly Chronicle* obtusely justly considered that Forster himself had "a kind of talent which was his talent which led him to become in Browning's words 'busiest of all' of genius-hunters".

J. H. Alexander  
J. H. Alexander is lecturer in English at the University of Aberdeen.

This year's *Essays and Studies* volume by Beatrice White and published by John Murray at £8.95. Contributions include Roger Shattuck on Graham Greene, Edward Neill on Auden and the 'god' and Alice Parnham on the English Association for the Schools.

## Nothing pretentious

A Stranger and Afraid: the autobiography of an intellectual  
by G. S. Fraser  
Carcanet Press, £8.85  
ISBN 0 95635 460 0

George Fraser was born in 1915 and died in 1980. He was known to most of those interested in such things as a poet, a critic, a teacher, and as a provocateur of poetry and criticism among others.

He was from childhood (as this autobiography makes clear) bookish and awkward, always aware of his difference from apparently well-adjusted extroverts who seemed to go through life with such self-confidence. His poetry, in spite of his brief and almost accidental association with the 'Apocalypse' movement in the late 1930s, dealt largely with personal and local themes, often in mood of subdued elegiac reflection.

His criticism was a clarifying, evaluating, explaining, illuminating, and, with quiet precision, the critic of a good university teacher, and much of it in fact grew out of his teaching.

Then we come to literary London immediately after the war with accounts of Tambimuttu, Nicholas Moore, William Empson, Tom Scott, and others. Top South America is Fraser en route for South America as one of a group of young men sent out to further cultural relations between Britain and the River Plate Republics.

The book contains several poems interspersed at intervals, developing or illustrating or illuminating some of the themes touched on in the narrative. They show how good Fraser was as a poet of personal encounters anchored in specific places. There is nothing pretentious about his book, as there was nothing pretentious about George Fraser. Some of the most interesting and certainly most influential years of his life were the years after this ends when (backed up by his wife Paddy) he helped so many young poets and others by his talk, his poems, his criticism, his civilizing and encouraging presence. An unambitious, unheroic figure, claiming no great mission for himself but always on the look out for the rare, the singular, the 'for the indifference and naked human', as he wrote in his poem to Hugh MacDiarmid, he wrote honestly, without fooling himself or trying to fool the reader.

This autobiography will disappoint readers who look for sensational revelations, but it will please and move those who recognize and appreciate good and honest writing by a good and honest man of letters.

David Dalches

David Dalches has recently concluded delivering the Gifford lectures, to be published under the title 'God and the Poet'.

## BOOKS

## Green politics

Environmental Groups in Politics  
by Phillip Lowe and Jane Goyder  
Allen & Unwin, £15.00 and £6.95  
ISBN 0 04 329043 4 and 329044 2

Lowe and Goyder's study is by far the most comprehensive appraisal of environmental pressure groups yet published. Both authors together with their colleagues have produced numerous articles on this general topic during the past five years, and this book represents a synthesis of all those contributions plus detailed case-studies of five 'representative' groups: the Henley Society, Friends of the Earth, the National Trust, the Royal Society for Nature Conservation, and the European Environmental Bureau.

The authors first consider pressure groups as manifestations of changing social values and as an expression of collective anxieties, frustrations and aspirations for a greater political recognition of environmental aspects of public and private decisions. They then assess the internal structure and degree of democracy within the groups, and examine how these seek to influence policy and capture the hearts and minds of both ordinary people and those with more power.

Two major types of pressure groups can be distinguished: interest groups, unified in pursuit of the common interests of their members; and principle groups, who uphold a particular set of values - a useful intellectual distinction but not one that is easily observable in practice. For instance, although many local amenity societies form and operate to protect the environmental quality of their surrounding countryside, and the frugal use of resources. A better distinction might have been made in terms of scale of territorial interest (a point made by the authors).

Principle groups can be further divided into those emphasizing values already well established (often from their own lobbying) and whose role is mainly as public watchdog; and those promoting particular values which are not yet accepted political currency. Lowe and Goyder suggest that the life-cycle of many principle groups is from 'promotion' (passive and reformist) to 'emphasis' (active and consolidating) as successes are achieved or leadership matures. They also suggest that some key groups (such as the Town and Country Planning Association and the Council for the Protection of Rural England) combine both roles as political circumstances change and new leaders emerge.

The distinction between 'promotion' and 'emphasis' groups might have been better drawn, however, in terms of issues (including their political content). Of particular interest is the emergence of important protest groups around new issues, such as CLEAR which recently did so well in its campaign to have lead removed from petrol. The success of this group is due to a combination of astute leadership, aggressive tactics, and shrewd manipulation of the media. CLEAR also managed to by-pass established groups, who were making very little headway against the forces of inertia.

One strength of the British environmental movement lies in an interesting paradox: the leaders form a remarkably tight-knit circle of close acquaintances, yet most friends and contacts all kinds of interests and political affiliations. Indeed, their sectoral achievements and collective 'failure' (a relative term) may be a reflection of the relative stability of the British environmental movement, the jealousies of the senior figures (despite the multi-membership of some key British environmentalists) to protect their own 'patch', and the absence of any single charismatic leader such as Ralph Nader in America or Petra Kelly, leader of West Germany's Green Party.

The failure of the British movement to convert sympathy and latent support into a coherent and mobilized political force, the crucial injustices of the British electoral system, and the long tradi-



Miners' houses in a relatively rural area of Bedlington, Northumberland, where rainwater collection (at the rear of the house) was common. Taken from *The English Terraced House* by Stefan Muthesius, published by Yale University Press at £12.50.

another 1,000,000 to that total. Total annual income is about £26m. The National Trust and the Royal Society for the Protection of Birds accounting for more than half of this. Through media exposure, through support from school teachers and their pupils, through the cooption of people with expertise often successfully critical of establishment thinking and through skilful manipulation of statutory processes of consultation and objection, environmental groups have not only managed to delay and change decisions but also to increase people's awareness of the issues.

Although the authors found that the groups' memberships came from predominantly middle-class backgrounds, the principles they espoused were shared by a wider social class. Membership clearly does not equate with sympathy: indeed the change in public attitude that this would seem to indicate may well be the most important political involvement of these groups in recent years. What is required now is a focal point for harnessing the sympathy; and the current debate is basically about whether that focal point should be a political party (to which the Ecology Party lays claim) or an identifiable environmental line in each of the major existing parties.

Other points emerge from this exceedingly wide-ranging analysis. First, there is the tremendous variation in group size, expertise, resources and political influence (with a bias towards Conservative Party membership especially at the top of the 'established' groups). Then, there is the great variety of democratic (more commonly non-democratic) power structures, and the range of tactics used to attract membership, influence decision-makers and actually shape policy (depending on who is at the top of the membership, what policies are being attacked, and what governmental bodies are being pursued). And finally, group lifetimes vary from a hundred years to a few months.

In general, British environmental groups have tended to mirror the political culture of all British pressure groups: they prefer persuasion to radical action; reasoned argument to fanatical shouting; and sobriety and reasonableness to anger and confrontation. However, they still have no cohesive political force nor have they successfully allied themselves to the more politically successful consumer, women's and peace movements, as they are after all rather a hedge-podge, with all kinds of interests and political affiliations. Indeed, their sectoral achievements and collective 'failure' (a relative term) may be a reflection of the relative stability of the British environmental movement, the jealousies of the senior figures (despite the multi-membership of some key British environmentalists) to protect their own 'patch', and the absence of any single charismatic leader such as Ralph Nader in America or Petra Kelly, leader of West Germany's Green Party.

The failure of the British movement to convert sympathy and latent support into a coherent and mobilized political force, the crucial injustices of the British electoral system, and the long tradi-

tions of reasoned discussion with 'accepted insiders' and opaque secrecy towards radical 'outsiders' that enable long-standing and 'respectable' interests to remain dominant, may also be responsible. Although some within the British environmental movement would recognize all this, as yet the movement is too disparate and ill-coordinated to respond to calls for unity and concerted action. This book will tell you why.

Pressure groups are composed of people and led by personalities: their effectiveness is as much a product of the qualities of the people at the top (and those with whom they are dealing) as it is a feature of membership, expertise, lobbying tactics and organization. The case studies that form the latter part of the book are weakened largely because this aspect is omitted; but then this is an understandable result of the liberal laws.

Timothy O'Riordan

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## Strategic tract

London's Green Belt: containment in practice  
by Richard Muntion  
Allen & Unwin, £12.95  
ISBN 0 04 330202 7

It is a sign of advancing years to be able to recall the heady days of the great green belt debate of the 1950s. For the green belt, that cordón sanitaire which contains most of our major cities, quickly became acceptable - almost all things to almost all men.

To the urban dweller it was a potential (though often never fully realized) source of recreation and rural solace. To the farmer it gave security against urban encroachment. To the fortunate resident it was a means of maintaining and enhancing property values. To the distant planning officer it provided an element of certainty in a world where so many decisions were challenged. To the politician it was a tangible achievement marketable at elections. And even to the wicked developer it gave a hint of opportunity, or else why should it be so common to find land fringing green-belt villages owned by builders and temporarily devoted to 'horticultural' uses.

In short, the green belt became a British institution, and a source of wonder and publication for the visiting academic tourist. When Peter Walker, then Environment Secretary, instituted a wide-ranging review of the environmental quality of green-belt land in 1970, the study was never published or properly completed. Politicians needed to tread on green-belt land rather as one would in the Sistine Chapel.

The green belt as a planning device, however, has not been without its difficulties. It is imprecise in its goals, it was implemented variably, both spatially and temporally, from its very nature it has lacked the flexibility to deal with changing economic and social circumstances. For example, it contributed substantially to the land scarcity of the 1960s, particularly in south-east England where population and urban areas were at that time expanding rapidly. At the moment there are still problems over the supply of land for house construction in and around our cities - prices are high and hence the cost of building is inflated. There is a plain need for a cool review of green belt policy after 30 years of operation, and it is precisely this that Richard Muntion has attempted for London's green belt.

His approach is to discount as far as is practical the statements contained in public documents - government circulars, structure plans, and the like - and to concentrate on what happens on the ground. The process of the implementation of green-belt policy, it is argued, is itself full of conflicts and is concerned not so much with the principled and highly generalized view of the Department of the Environment, but much more with the sharp, specific and self-interested approach of those who occupy, 'or wish to occupy', green-belt land, and with the compromises which have to be reached by local planners.

These latter on the one hand appreciate the strategic role that green belts have to play but on the other are pressured by detailed planning applications, the attentions of interest groups and the need to satisfy their elected local political masters. The author does this by conducting semi-structured interviews with key officials and users of green-belt land (farmers, developers, mineral extractors, and so forth) - and by undertaking a detailed survey of land market trends and of the attitudes and performance of a 40 per cent sample of farmers in three study areas to the west, south and north-east of the conurbation.

Muntion's findings are more illuminating than surprising. He has important things to say on the size and delimitation of the green belt, on environmental issues including the likely impact of the M25 ring now under construction, on the growth of non-conforming land uses and on the maintenance of farming. He provides new data and refines old surveys. The main value of this clearly presented, thorough and workmanlike book, however, is that it delineates in some detail the character and conflicts of a considerable tract of land, which in the future critical decisions may have to be taken both over its urban and rural land usage, and over its regional strategic purpose.

David Thomas

Professor Thomas is head of the department of geography at the University of Birmingham.

## Among the activists

Anti-Nuclear Protest: the opposition to nuclear energy in France  
by Alain Touraine, Suzana Hegedus, François Dubel and Michael Wieworka  
Cambridge University Press, £19.50  
ISBN 0 521 24964 3

The anti-nuclear protest discussed in this book relates specifically to the struggle against nuclear electricity generating installations. The ecological struggle against nuclear power stations is of great general interest and the case of France has particular importance because the programme of constructing these power stations embarked on by the Messmer Government in the wake of the first oil crisis, was the most ambitious in the industrialized world. The authors do not, however, give a detailed account of the development of this programme and the reactions to it. The ambition of the book is to analyse the interaction between small groups of people to the divisions within the anti-nuclear movement and the reactions of individuals within it to specific arguments, developments and events.

The method chosen for this study is a form of participant observation. Two 'intervention groups' of anti-nuclear activists were formed in 1978, one in Paris the other in Grenoble-Marseille. These groups held discussions with persons of their own choosing - allies, opponents, trade unionists, industrialists, ecologists and so on. The researchers, called the agitator and the secretary, encouraged the groups to analyse this activity. The researchers then, in a phase called conversion, formulated hypotheses and informed the groups of the highest possible meaning of their action and helped them to understand that action from such a vantage point. In the final phase, dubbed permanent sociology, the researchers discussed their preliminary conclusions with the members of the intervention groups with a view to using them as a basis for a programme of action.

Alain Touraine has described this method in more detail in a previous work *The Voice and the Eye*. Whether it is regarded as a valid research method or as an expensive method of political mobilization depends on the political values of the reader. The authors, however, believe that they have arrived at a dispassionate assessment of the anti-nuclear campaign. As they write, somewhat obscurely: 'It is not in the name of personal preference or ideologies that we announce the visible presence of a new social movement, nor is it as the devoted interpreters of the actors and their ideologies, but after an intervention in which we questioned the anti-nuclear struggle at length, placing ourselves far from its practices and its representations, on the summit of a distant social movement' (page 180).

Providing no detailed history of the anti-nuclear movement (a non-French readership would particularly like explanations for the very weak opposition in France to the Independent nuclear movement), nor a systematic analysis of the groups involved nor comparisons with the experience of other countries, the authors none the less give interesting accounts of certain matters. An important chapter on the conflict of cultures describes the clash between, on the one hand, the values of industrial society, the assumptions of scientific research, and the technological mentality and, on the other hand, egalitarian values, the themes of post-industrial society and the rejection of the existing political order.

The alignments and conflicts between small groups of activists and their own reactions to the failures of the movement make interesting reading, but this is a book which will appeal mainly to sociologists.

Malcolm Anderson

Malcolm Anderson is professor of politics at the University of Edinburgh.

A paperback edition of Lawrence Freedman's *The Evolution of Nuclear Strategy* (reviewed in *THEES* of 8th January, 1982) has been published by Macmillan at £8.95.



# BOOKS

## Down to Earth

Gravity  
by Choji Tsuboi  
Allen & Unwin, £20.00 and £9.95  
ISBN 004 551 072 5 and 1046 3

The measurement of gravity at many places on the Earth's surface has provided valuable information on its internal structure, ranging from very local to global scales. Such measurements have been particularly useful in constructing models of the structure of the Earth's upper crust and in developing techniques used in mineral exploration.

Surface gravity depends on the density of the underlying material. As variations in gravity at the Earth's surface of one part on ten to the power of five (or more) are typical, careful measurements of gravity over wide areas enable us to deduce the corresponding variations in density below the surface and thus deduce the Earth's internal structure. In local regions, this provides a means of tracing minerals with densities that contrast with the surrounding rocks; on much larger scales, these measurements provide a means of putting present deformations of the Earth's crust into historical perspective.

Large surface masses, such as mountain ranges, also cause variations in gravity. And during the last century it was observed that those variations tended to be smaller than those predicted for an Earth having a crust that was rigid and homogeneous. To explain this discrepancy, Earth scientists have developed the idea of "isostasy" in which they envisage large masses floating like icebergs on a more dense, less viscous interior sphere, or mantle.

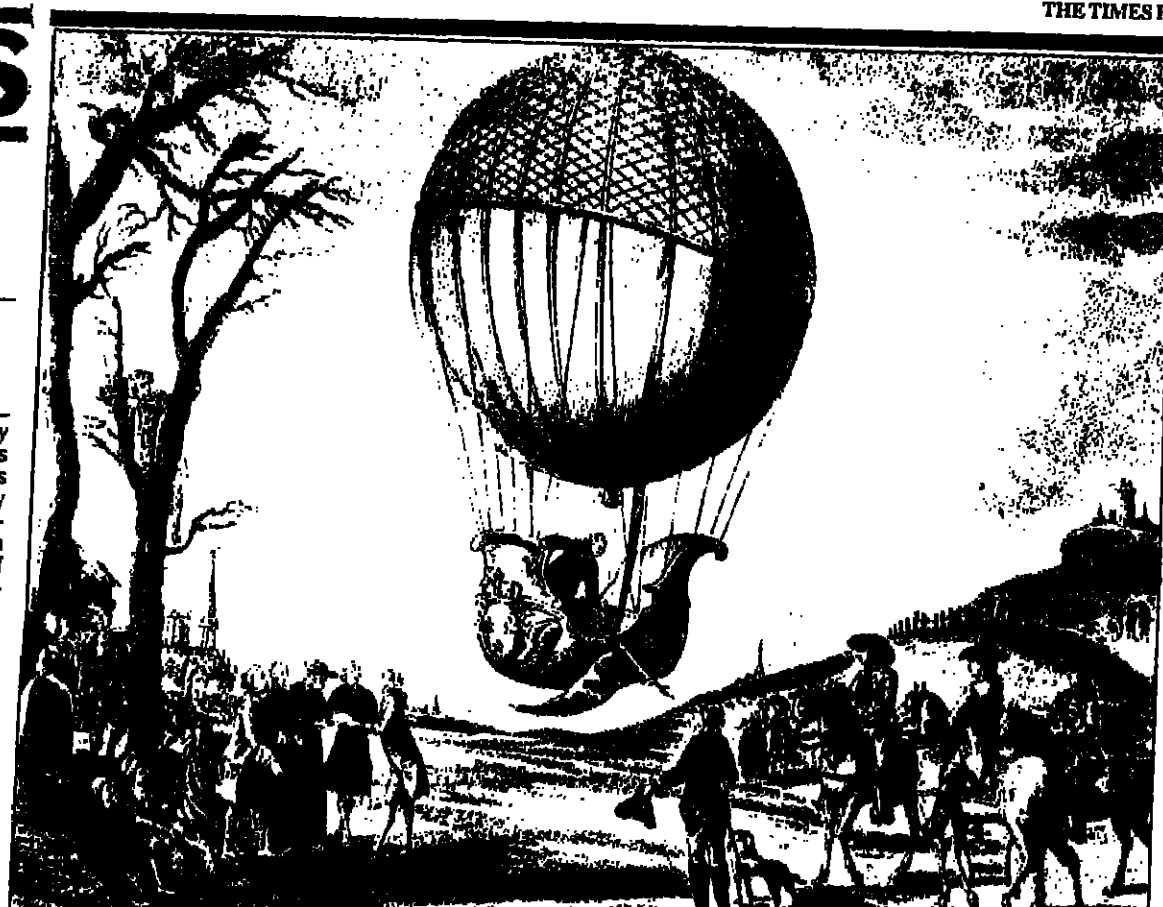
The late Choji Tsuboi (who died last November at the age of 81) has concerned himself in this textbook with how gravity measurements are made and how they can be used to determine the isostatic nature and dynamics of the Earth's crust. As he had worked in this field for much of this century, he has told his story with the kind of interesting details not ordinarily found in books of this kind. His explanations are lucid and well illustrated.

Professor Tsuboi presents just enough detailed mathematics to be of use in an introductory text. Also, as he prefers to write out the full equations of ordinary differential calculus rather than use linear algebraic notation, then making his equations more explicit, students should easily be able to grasp the necessary mathematics in order to apply what they have learned to the many practical applications found in geodesy and geophysics today. And the numerous pedagogical analogies are most instructive.

The Earth's interior is also undergoing dynamic changes, influenced by, for example, convective and subductive forces. As these processes also affect surface gravity, it is impossible to interpret variations in gravity solely in terms of simple isostatic models. In his text, Professor Tsuboi describes the mathematical methods he has derived to differentiate gravity and topographic fields into Fourier coefficients in order to produce a more detailed model of isostatic compensation. Clearly, these methods have practical applications; and Professor Tsuboi outlines their use in the study of large-scale crustal deformation and in geodynamics, with examples from North America and the European Alps.

Many of Professor Tsuboi's other illustrations are based on actual modelled results from Japanese sites. For example, he presents interesting results on the variations in surface gravity caused by tectonic movements on the island of Japan. He also shows how measurements of gravity have revealed the gross structure and dynamics of the Earth's crust in the region of the Japanese Islands. He then draws conclusions from his examples in order to illustrate our present understanding of the Earth's dynamic processes.

Although this book is similar in many ways to the classic text of



Charles Montgolfier takes off for a solo flight—travelling three miles in 30 minutes. Taken from *The Montgolfier Brothers and the Invention of Aviation, 1783-1784* by Charles Coulston Gillespie, published by Princeton University Press at £30.20.

Heiskanen and Vening-Meinesz, it is much easier to read; and I prefer Professor Tsuboi's soundly-written presentation of the basic concepts.

A. J. Anderson

A. J. Anderson is an associate professor of geodesy at the University of Uppsala, Sweden.

## Layer by layer

The interior of the Earth  
its structure, constitution and evolution  
(second edition)  
by Martin H.P. Bott  
Edward Arnold, £25.00  
ISBN 07131 2842 9

There are very few books on the structure, constitution and evolution of the Earth's interior. Although the rapid advances in plate tectonics and well-documented, the exploration of the interior of the Earth by geophysical methods, even though this has also progressed rapidly, is less well documented at the textbook level. This is unfortunate, as workers in geology, planetary science and geodynamics often use outmoded concepts of the Earth's internal structure in their studies.

As the first edition of this book was published in 1971, just after the main phase of the plate tectonics revolution, most of the original text has been rewritten to incorporate advances of the last decade in our understanding of the interior of the Earth and the dynamic processes occurring in its mantle and core. Though written for undergraduate and graduate students of geology and geophysics, it should also interest Earth scientists or laymen requiring a general account of the discoveries of solid-Earth geophysics. Consequently, as this is a heavily mathematical subject, the treatment is deliberately non-mathematical.

Conventional topics such as shape, mass, structure, composition, briefly covered in an introductory chapter. Subsequent chapters cover the continental crust, continental drift, sea-floor spreading, the mantle, the core, and mechanisms of global tectonics. Topics receiving special attention are continental margins and island arcs, terrestrial heat flow, and the rheology of the crust and mantle.

The book would be most suitable for a course in geophysics for undergraduates or as a supplementary text for a first-year graduate course. However, as there is little petrology or geochemistry, readers are likely to get a very incomplete view of the origin and composition of the interior. And

the absence of mathematics, even though this might make the book accessible to a broader audience, means that the serious student will have to shift very quickly to a more advanced treatment. On the other hand, as any serious students of the Earth should know all the material covered, this would be a good place to start.

Because of the importance of geophysics to modern Earth sciences, a book of this type should be read by beginning geology students while they are learning more traditional geological subjects. However, although the treatment of plate tectonics is adequate for non-specialists, the many tools available to the modern solid-Earth geophysicist can only be hinted at in such a non-quantitative treatment.

Don. L. Anderson

Don L. Anderson is professor of geophysics in the Seismological Laboratory of the California Institute of Technology in Pasadena.

## Machine power

Electrical Machines and Power Electronics  
by R.S. Stevan  
Van Nostrand Reinhold,  
£17.50 and £10.25  
ISBN 0442 30547 8 and 30548 6

Nowadays, what an electric motor can do depends as much on the electronics which goes with it as on the motor itself. Few degree courses still retain electrical machines as a topic for specialist study, and most concentrate on the "complete system" approach. Although such changes ought to be reflected in the steady stream of new student texts, they seldom are. Dr Stevan's book goes some way to satisfying this demand, but overall remains disappointingly traditional.

Most electrical machines are still of the century-old type as at the turn of the century. Industry's workhorse—the induction motor—will be instantly recognizable to its inventor, 80 years on. But Mr Stevan would doubtless find today's power levels scarcely credible. His one horsepower capacity would now be expected to deliver at least ten horsepower. These remarkable changes have been brought about by attention to detail, rather than radical rethinking. Better magnetic steels, improved insulation, computer-aided thermal and magnetic design, have all played their part in raising specific output. The quest for the ultimate power station, now cooled by water and hydrogen gas, a single generator

no bigger than the average living room will generate half a million kilowatts. A hundred such machines could supply all Britain's electricity. But alongside impressive developments in the machines themselves—and of potentially even greater significance for the future—are the fruits of the amalgamation of two fields: electronics and machines. Electronics is making a major impact, especially in opening up new ways for controlling motors, and its influence can be seen in two distinct but related areas.

On one side, "power electronic" devices (transistors, diodes, thyristors) are now used to regulate the flow of power to machines. Outmoded and inefficient electromechanical devices (for example, the rheostat) are out, replaced by reliable and infinitely more flexible solid-state devices. Transistors, so often taken as synonymous with radio, are now able to handle currents of hundreds of amperes, and thus to control large industrial motors.

On the "control" side, the "light-current" circuits—which in turn drive the power-electronic devices—are being replaced by microprocessors, permitting very sophisticated operations to be achieved quickly and cheaply. This amalgamation of "muscle power" and "intelligence" is most evident in robotics, but is finding its way into all areas of industry. It forms a new integrated discipline, perhaps best called "motion control", and it demands in its turn a new breed of graduate engineer with machines, power-electronics and control interests.

Although machines as a specialist subject will continue as a minority interest, it now has altogether wider appeal—as a vital part of this new composite discipline. Students find it exciting and expect stimulation in new texts on machines. This one is sound enough, and covers all the traditional material (energy conversion principles, direct current machines, transformers, synchronous machines, induction motors, generalized theory, and dynamics) but is unlikely to excite the non-specialist. And although it does give introductory material on power electronics, this amounts to only 40 out of 400 pages—hardly enough to warrant equal status with machines in the title and certainly insufficient for "practising engineers" who wish to update their knowledge.

Much of the outdated material (for example, calculation of starting resistances, Scherbius system, Schrage motor and even Ward-Leonard) could have been omitted in favour of more relevant topics. The controlled thyristor drive, for example, does after all account for 90 per cent of controlled-speed systems, yet it gets only the briefest mention.

Austin Hughes

Austin Hughes is senior lecturer in the department of electrical and electronic engineering at the University of Leeds.

## Plant responses

Environment and Plant Ecology  
(second edition)  
by J. R. Etherington  
Wiley, £25.00 and £12.00  
ISBN 0 471 10136 2 and 10146 X

When Etherington's undergraduate textbook on environment and plant ecology was first published in 1976, it had a rather mixed reception. However, as many of the earlier criticisms have now been met and answered in this enlarged and updated edition, his book should serve as a welcome replacement for its earlier text.

Some new chapters have been added and others expanded, providing a more balanced treatment of the various environmental effects. This improved structure results in a logical division into three main sections—environment, plant response and plants ecosystems—which give the contents a coherent shape and recognizable theme.

Within the section on environment, detailed treatments are provided of the aerial and underground environments, although the latter quantitative physicochemical approach to the above-ground environment is in marked contrast to the more qualitative treatment of soils and the environment. Unfortunately, the chapter on soils is written in a traditional pedagogical style which seems invariably to blight any treatment of this subject.

Etherington has rightly located most of his new material in the central section of his book, on plant responses. Here, a new chapter on plants and radiant energy and one on climate and plant response, plus expanded chapters on water relations and mineral nutrition, are valuable improvements to what was one of the weaker aspects of the original text. The chapter on water relations by William Armstrong is also been extensively revised, although the inclusion of such a specialist contribution is something of an anomaly, particularly in a subject as eclectic as physiological ecology.

The final section of the book, on plants in ecosystems, is the most rewarding for the reader in search of some unifying concepts, rather than the more factual cataloguing of changes here include a new chapter on population ecology, an expanded chapter on plants in ecosystems, a revised treatment of biogeographical cycles. Etherington concludes with an interesting appendix on milestones in the development of ecological thought, plant population dynamics and physiological ecology, although the exclusion of the work of A. S. Watt from the list of pioneer studies in quantitative ecology is surprising.

As it is not possible to cover all aspects of physiological plant ecology in a book of less than 500 pages, inevitably some areas are treated in greater depth than others. Where deficiencies occur, however, there is a more than adequate entrée into the specialist literature. Etherington's new edition is sufficiently comprehensive and factually detailed to be essential reading for undergraduate students of plant ecology and useful additional reading for those studying such related areas as plant physiology.

D. A. Baker

D. A. Baker is professor of agricultural botany at Wye College, University of London.

A second edition of *Mineralogy: concepts, descriptions, determination* by L. G. Berry, Brian Mason and R. V. Dietrich has been published by Prentice Hall at £25.95.

A third edition of Peter Greig-Smith's *Quantitative Plant Ecology* has been published by Blackwell Scientific at £19.00 and £12.80. A new chapter on "vegetation and environment", dealt with the broader topic of the relation of total composition of vegetation, rather than individual species, to habitat factors. However, the use of the systems approach to investigate the functioning of ecosystems—a significant development of the past two decades—has not been included.

## Chairs

Mr A. D. Chambers has been appointed to the newly established BP Chair in internal auditing at the City University while Professor T. E. Allibone has been designated Robert Kitchen (Saddlers) Professor.

At the same time eight visiting professorships were announced: Mr P. R. Martin (mechanical engineering); Professor J. J. DiStefano (systems science); Dr H. P. Rickman (social science and humanities); Dr Redvers Opie and Dr J. A. P. Trease (business school); Professor L. L. Kenchington and Professor M. Seaman (engineering management); Mr E. H. Burn (legal studies).

Dr John Maxwell Irvine, at present reader in theoretical physics has been promoted to a personal chair at the University of Manchester. Dr Irvine has been a member of the SERC Working Party on the Future of Nuclear Physics.

The University of Glasgow has appointed Dr Malcolm P. Atkinson to a second chair in computing science; Dr Atkinson is at present a lecturer in computer science at the University of Edinburgh and will take up his new post after a year as visiting professor at the Move School of Engineering and the Wharton Business School of the University of Pennsylvania.

## Events

The University of Surrey's Space Structures Research Centre is expanding a Third International Conference on Space Structures, to be held on September 11 to 14, 1984.

The conference is being organized by an international panel of engineers and architects from 35 countries, headed by the pre-conference of the university, Sir Monty Kinnison.

Among the topics to be discussed will be: Formative Design, a new mathematical concept developed at Surrey for automatic design preparation and computer graphics; the design and construction of grids, vaults, domes, towers, folded plates, radar dishes etc. Further information can be had from the Space Structures Research Centre at the University.

The Centre for Staff Development in Higher Education have organized a four-day course for lecturers from September 19 to 22 at the Institute of Education, Bedford Way, London WC1.

The course is designed to help lecturers explore key aspects of their work, particularly teaching methods, planning of teaching sessions, and assessment of students. For details ring 01-436 1800 x 489.

The 14th Willis Huggins lecture, inaugurated in 1969 as part of the British Association for Commercial and Industrial Education's General Lectures scheme, will be given on October 5 by Lord Raza at the Royal Institute of British Architects, Lord Raza's subject will be *Industrial Policy and the Environment*. Lord Raza is President, Professor Sir Frederick Warner FRSE.

Publications

The Institute of Chartered Secretaries and Administrators has published a booklet entitled *Administrative: The flexible professional career designed to increase people in education, among young people in education, and generally of the role and function of the chartered secretary as a professional administrator*. It is available from the Careers Department, CSA, Park Crescent, London W1A 1AF, who will supply further information.

Dr D. L. Kirk, £17,650 from Ministry of Defence (solid rocket motor); Dr R. J. Aldridge, £19,590 from NERC (biological ecology of coastal waters); Dr P. D. Cytel, £10,880 from Royal Society (nitrogen fixation in soil rhizosphere systems); Professor M. J. Owen and Dr V. J. Midgley, £23,530 from SERC (CAD/ADM of filament woven FRP components); Professor J. P. Simons and Dr J. P. Palmer, £20,187 from SERC (reaction dynamics and thermodynamics of laser excited atoms and molecules); Professor A. F. M. Smith and Dr A. M. Skerrett, £20,720 from SERC (numerical integration method for Bayesian inference); Dr P. G. Strong, £28,153 from SERC (biochemical control of switched reluctance motor); Dr A. P. Fennell and M. P. Nicholson, £11,750 from TAC Construction Materials (Thurston's subject control plates); Professor E. N. Corlett, £10,000 from Transfer Technology (with a supplement of £12,825 from SERC) (ultra-sonic sensors for flexible manufacturing); Professor C. Howarth, £21,459 from Transport and Road Research Laboratory (conflict resolution, training manual); Professor

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### Universities

#### The Flinders University of South Australia School of Medicine

**Reparation General Hospital, Daw Park**  
The Repatriation General Hospital, Daw Park is a teaching hospital of the Flinders University of South Australia. It is a 300 bed general hospital with services in medicine and surgery, as well as departments in rehabilitation and geriatrics, and paediatrics. The School of Medicine, Flinders University of South Australia, forms an integral part of the Flinders Medical Centre, a teaching hospital with a dual role as a regional community hospital based on the University campus. It is only three kilometres from the Repatriation General Hospital.

#### Lecturer/Senior Lecturer in Medicine/Rheumatology

Applications are invited from suitably qualified physicians for this University post which will be jointly funded by the Department of Veterans' Affairs and the Flinders University of South Australia. The post is located in the Repatriation General Hospital, Daw Park. The successful applicant will be expected to spend some time each week at the Flinders Medical Centre, a teaching hospital with a dual role as a regional community hospital based on the University campus. It is only three kilometres from the Repatriation General Hospital. The position is available from 1 January 1984.

The appointee will be expected to undertake responsibilities in patient care, teaching and research and to spend most of his or her time at the Repatriation General Hospital, Daw Park. However, the appointee will be encouraged to spend some time each week at the Flinders Medical Centre, a teaching hospital with a dual role as a regional community hospital based on the University campus. It is only three kilometres from the Repatriation General Hospital. The position is available from 1 January 1984.

Salary Scales: Lecturer: A522,450 - A529,467  
An appointee at the level of Lecturer will not be made above the first step of the scale, viz. A527,456.

Senior Lecturer: A530,000 - A535,077  
An appointee at the level of Senior Lecturer will not be made above the first step of the scale, viz. A532,000.

In addition to salary, the appointee will receive a critical loading of A57,500 a year and will have limited rights to private practice. The position is superseded.

Information about the conditions of appointment and details required of applicants, may be obtained from The Secretary General, The Association of Commonwealth Universities, 26 Gordon Square, London WC1H 0PF, England. Applications should be lodged in duplicate, with the Registrar, The Flinders University of South Australia, Bedford Park, South Australia, 5042, by Friday 22 September, 1983.

### UMIST

#### INFORMATION TECHNOLOGY INITIATIVE

Applications are invited for posts in the following areas:

#### LECTURER FOR RESEARCH INTO RELIABLE COMPUTER SYSTEMS ARCHITECTURE (REF: EEE122/C)

Candidates must have an interest in distributed multiprocessor systems for research into reliability, fault tolerance and recovery. The position is available from 1 October 1983.

#### LECTURER ASSOCIATED WITH M.Sc. CONVERSION COURSES (REF: EEE123/C)

The appointee will be expected to assist in the development and delivery of laboratory material associated with the M.Sc. Conversion Courses in Engineering and Design. The position is available from 1 October 1983.

The appointee will be expected to assist in the development and delivery of laboratory material associated with the M.Sc. Conversion Courses in Engineering and Design. The position is available from 1 October 1983.

UMIST, PO Box 86, Manchester M60 1UD. The closing date is 15 September 1983.

#### THE NEW UNIVERSITY INSTITUTE OF CONTINUING EDUCATION

Research Assistant in Archaeology

Applications are invited for the above post which will involve research in the field of Archaeology. The position is available from 1 October 1983.

Further details may be obtained from the Secretary, The New University of London, 100, Strand, London WC2R 0LU.

Applications should be sent to the Secretary, The New University of London, 100, Strand, London WC2R 0LU.

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#### Massey University Palmerston North, New Zealand

#### Department of Agriculture & Forestry LECTURER IN HORTICULTURAL MANAGEMENT

Applications are invited for the position of Lecturer in Horticultural Management in the Department of Agriculture & Forestry, Massey University, Palmerston North, New Zealand.

The Department offers horticultural management and diploma courses in the field of horticulture and landscape design. The successful applicant will be expected to teach undergraduate and postgraduate students, and to undertake research in the field of horticultural management.

Applicants should hold a degree in horticulture or a related field, and have at least five years' experience in horticultural management. The position is available from 1 January 1984.

Further details may be obtained from the Registrar, Massey University, Palmerston North, New Zealand.

Applications should be sent to the Registrar, Massey University, Palmerston North, New Zealand.

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#### The City University School of Electrical Engineering and Applied Physics LECTURERSHIP

Applications are invited for the position of Lecturer in the School of Electrical Engineering and Applied Physics, The City University, London.

The successful applicant will be expected to teach undergraduate and postgraduate students, and to undertake research in the field of electrical engineering and applied physics.

Applicants should hold a degree in electrical engineering or a related field, and have at least five years' experience in the field of electrical engineering and applied physics.

Further details may be obtained from the Registrar, The City University, London.

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#### University of Newcastle Upon Tyne SENIOR ASSISTANT REGISTRAR AND ASSISTANT REGISTRAR

Applications are invited for the position of Senior Assistant Registrar and Assistant Registrar, University of Newcastle Upon Tyne.

The successful applicant will be expected to assist in the administration of the University, and to undertake research in the field of education.

Applicants should hold a degree in education or a related field, and have at least five years' experience in the field of education.

Further details may be obtained from the Registrar, University of Newcastle Upon Tyne.

Applications should be sent to the Registrar, University of Newcastle Upon Tyne.

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#### The University of Southern Sudan The University of Southern Sudan Department of Agriculture and Environmental Studies 1. FORESTRY (SILVICULTURE) Ref. No. U12/83 2. FORESTRY (MANAGEMENT) Ref. No. U12/83 3. FISHERIES (FISH BIOLOGY) Ref. No. U12/83 4. FARM MECHANISATION Ref. No. U12/83 5. BIOCHEMISTRY Ref. No. U12/83

Appointments will be made on a permanent basis. The successful applicant will be expected to teach undergraduate and postgraduate students, and to undertake research in the field of agriculture and environmental studies.

Applicants should hold a degree in the relevant field, and have at least five years' experience in the field of agriculture and environmental studies.

Further details may be obtained from the Registrar, The University of Southern Sudan.

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### Universities continued

#### University College Cardiff Department of Computing Mathematics and Computing Centre DATATYPE RESEARCH FELLOW in Computing Science

Applications are invited for the position of Datatype Research Fellow in Computing Science, University College Cardiff.

The successful applicant will be expected to undertake research in the field of computing science, and to teach undergraduate and postgraduate students.

Applicants should hold a degree in computing science or a related field, and have at least five years' experience in the field of computing science.

Further details may be obtained from the Registrar, University College Cardiff.

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